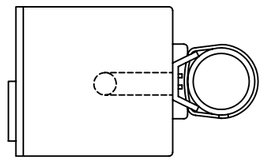
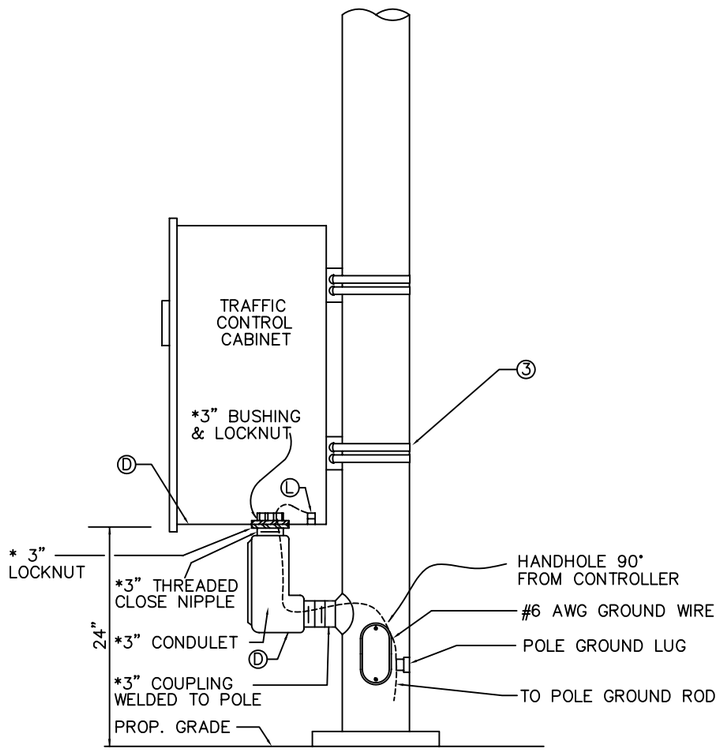
FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
5	OHIO		



TOP VIEW

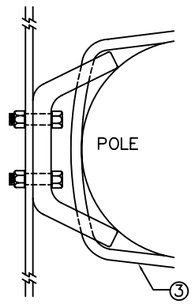
⑤ TYP. TOP VIEW OF CABINET MOUNTED ON STEEL POLE.



SIDE VIEW

TYP. CONTROLLER CABINET INSTALLATION ON A STEEL POLE

* 3" CONDUIT AND FITTINGS UNLESS OTHERWISE SPEC.



① TYP. CABINET MOUNTING BRACKET (2 EA. PER CABINET) FURNISH WITH CABINET

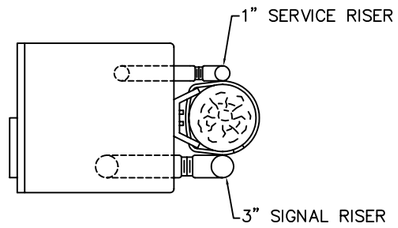
SECURE EACH BRACKET TO CABINET WITH 2 EACH 3/8" STN. STL. BOLTS, NUTS & WASHERS. THREADED END OF BOLT TOWARD INSIDE OF CABINET.

NOTE:

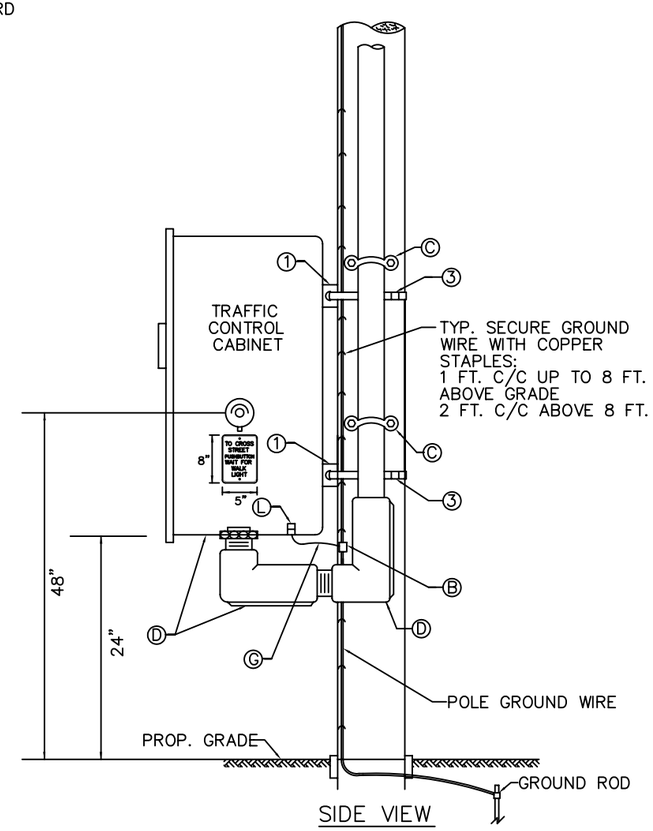
WHEN CONTROLLER IS LOCATED IN A SODDED AREA A 54" x 36" CONCRETE PAD SHALL BE POURED.

Ⓒ CONDUIT STRAPS USE DOUBLE HOLE TYPE.

SECURE WITH 2-1/2" LG. GALV. NAILS



TOP VIEW



SIDE VIEW

TYP. CONTROLLER CABINET INSTALLATION ON A WOOD POLE

NOTES

GENERAL

THE CABINET MAY CONTAIN A TRAFFIC SIGNAL CONTROLLER OR MAY BE A MASTER CONTROLLER, RELAY STATION, DETECTOR OR COUNTER STATION AS SPECIFIED ON THE PLANS.

GROUNDING

GROUND ALL METAL, NON-CURRENT CARRYING EQUIPMENT, INCLUDING CONDUIT, MESSENGER WIRE, POLE, CABINET, CABINET PANELS OR CHASSIS, AND GROUND ROD.

ENTRANCE FITTINGS

FURNISH AND INSTALL ANY REQUIRED FITTINGS INCLUDING DRILLING HOLES AND WELDING THE THREADED PIPE NIPPLE TO POLE. PAINT HOLES AND NIPPLES WITH ZINC-IT SPOT PRIMER PER SPEC. 1317.

CONDUIT

PVC CONDUIT AND FITTINGS SHALL BE SCHEDULE 40. STEEL CONDUIT AND FITTINGS SHALL BE GALVANIZED AND MEET SPEC. 725.04.

REQUEST FOR SERVICE

IN REQUESTING ELECTRIC SERVICE FROM THE CG&E COMPANY, CONTACT TRAFFIC ENGINEERING 352-3737.

① CABINET MOUNTING BRACKETS

MOUNTING BRACKETS SHALL BE FURNISHED WITH THE TRAFFIC CONTROL CABINET. WHERE THE CITY FURNISHES A TYPE OF TRAFFIC CONTROL CABINET WHICH HAS NO BRACKETS, THE CITY WILL FURNISH BRACKETS AS SHOWN IN THE DETAIL. PROVIDE STAINLESS STEEL BANDING AND HARDWARE FOR SECURING CONDUIT AND CABINETS TO STEEL POLES.

② FOR BANDING CONDUITS TO POLES, USE 3/4" WIDE X .020" THICK STN. STL. BANDING.

③ FOR BANDING CABINETS TO POLES, USE 3/4" WIDE X .030" THICK STN. STL. BANDING. (FOR LARGER TC CABINETS, USE TWO BANDS FOR EACH BRACKET.)

Ⓑ SPLIT BOLT CONNECTOR; DOSSERT, BLACKBURN, OR APPROVED EQUAL.

Ⓒ GALVANIZED STEEL ALUMINUM OR MALLEABLE IRON DOUBLE HOLE CONDUIT CLAMPS. PROVIDE 2' SPACING C/C FOR ALL CONDUIT ABOVE ENCLOSURES AND 2' SPACING FOR CONDUIT BETWEEN ENCLOSURES TO GRADE.

Ⓓ DRILL 3/8" DRAIN HOLE IN LOWEST PART OF CABINETS AND FITTINGS.

Ⓛ GROUNDING LUGS: BLACKBURN L-125, T & B 1300 SERIES, OR APPROVED EQUAL. GROUNDING LUG MAY BE PROVIDED INSIDE ENCLOSURE. IN THIS CASE, FEED GROUND WIRE THROUGH ADDITIONAL ENCLOSURE DRAIN HOLE.

REFER TO STD. DWG ES-2-3 FOR ELECTRIC SERVICE AND RISER DETAILS.

Ⓖ #6 AWG BARE COPPER GROUND WIRE

STATE OF OHIO
STEVEN GERALD BAILEY
49331
REGISTERED
PROFESSIONAL ENGINEER

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

TRAFFIC CONTROL CABINET INSTALLATIONS

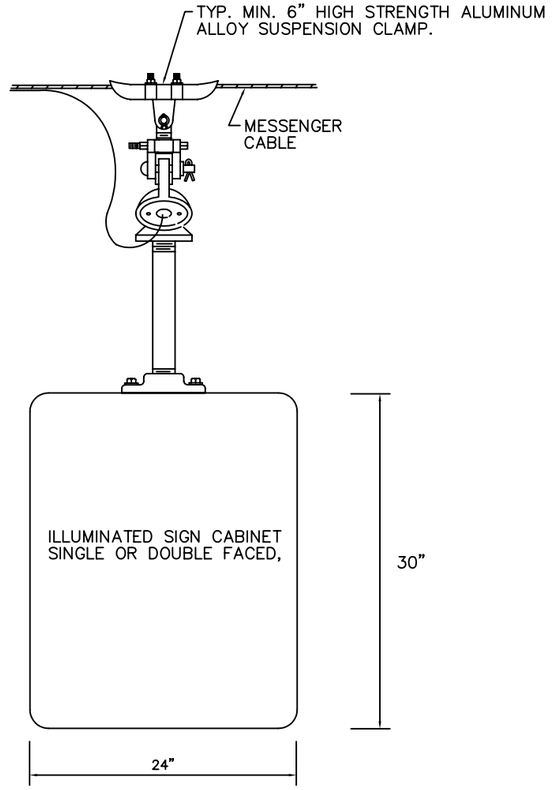
CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steve Bailey DATE 3-4-99

S.C.H.	Steve Bailey	8/18/04	UPDATE
T.E.		3/1/98	

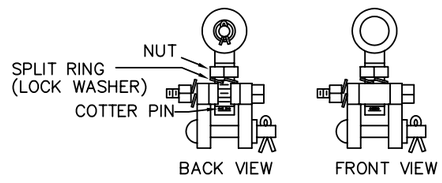
DESIGN	REVISION APPROVED	DATE	WO #	SCALE	SOURCE	DRAWN	FILE NO.
R.R.R.		6/3/92			ES - 8 4/19/78	CDS ASSOCIATES	ES-3-1

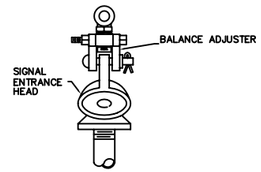
FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
5	OHIO		



TYP. 24" x 30" ILLUMINATED SIGN MOUNTING

GALV. BALANCE ADJUSTER





FRONT VIEW OF BALANCE ADJUSTER & SIGNAL ENTRANCE HEAD

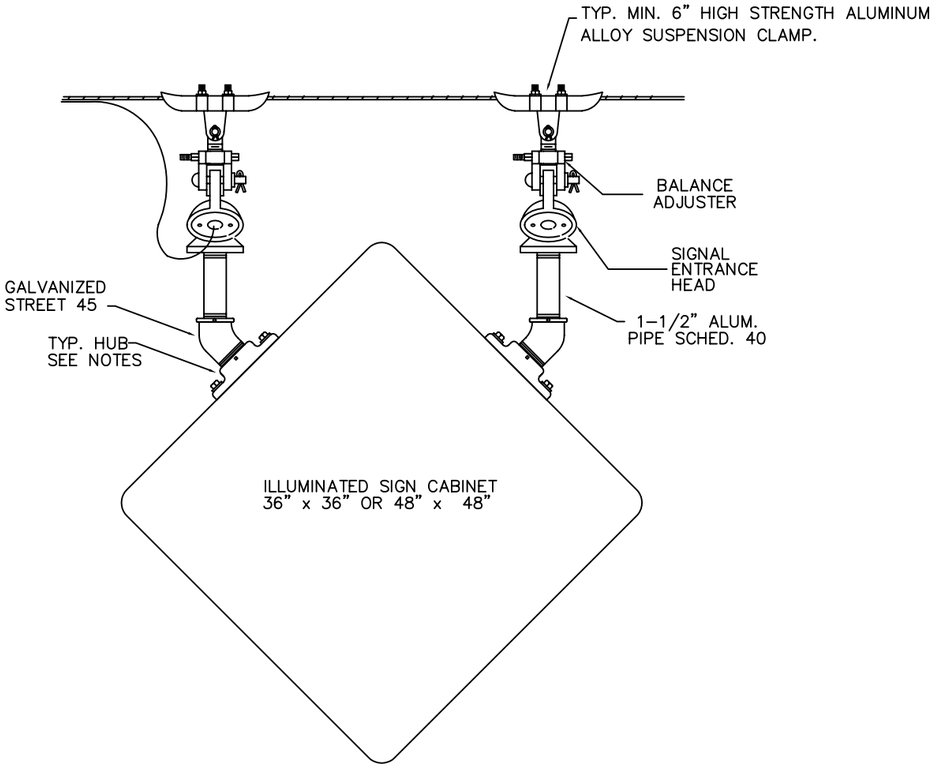
GENERAL NOTES

SIGN SHALL BE INSTALLED WITH 17' CLEARANCE TO PAVEMENT, AND/OR LEVEL WITH OTHER EQUIPMENT ON SPAN.

ALUM. PIPE & FITTINGS SHALL BE SCHED. 40 STEEL PIPE & FITTINGS SHALL BE GALV. SCHED. 40.

ALL HARDWARE FOR SECURING HUBS TO SIGN CABINETS SHALL BE STAINLESS STEEL NUTS, BOLTS & WASHERS SIZED TO HUB OPENINGS.

HUBS SHALL BE SIZED TO 1-1/2" PIPE. PROVIDE ENTRANCE HOLE (1") FOR WIRE ENTRY INTO SIGN CABINET. SECURE WEATHERPROOF SEAL OF HUBS TO SIGNS WITH GASKETS.



TYP. INSTALLATION OF DIAMOND SHAPE ILLUMINATED SIGN

STATE OF OHIO
STEVEN GERALD BAILEY
49331
REGISTERED PROFESSIONAL ENGINEER

S.C.H.	Steve Bailey	8/30/04	UPDATE
T.E.		3/1/98	

DESIGN	REVISION APPROVED	DATE	WO #
R.R.R.		6/26/92	

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

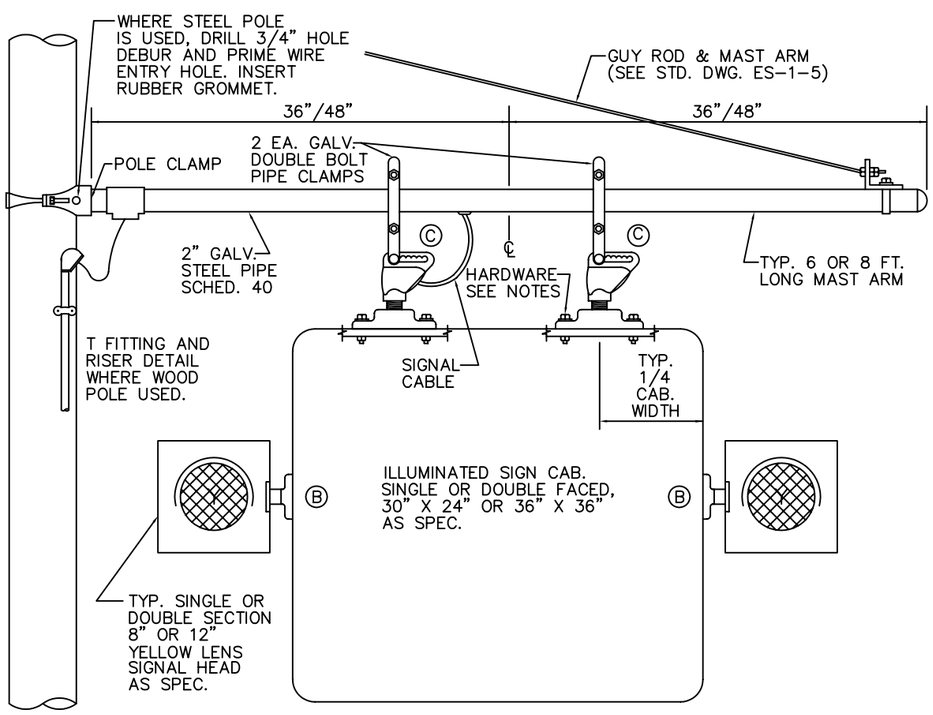
TYPICAL ILLUMINATED SIGN INSTALLATION

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

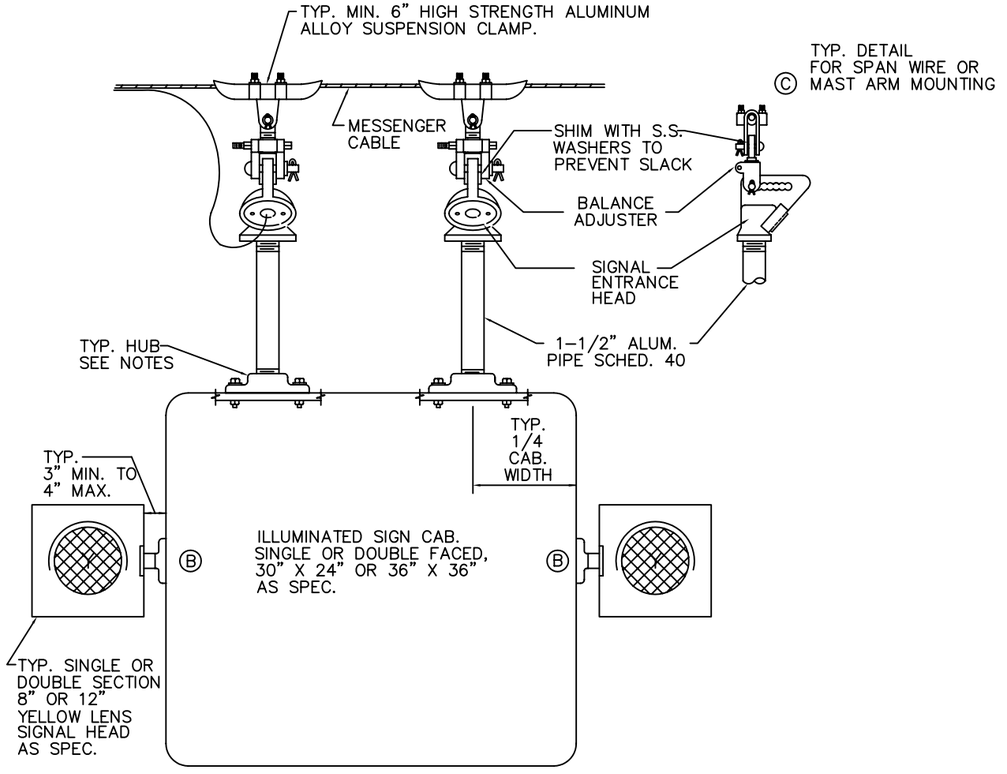
APPROVED Steve Bailey DATE 4-27-05

SCALE	SOURCE	DRAWN	FILE NO.
	NEW STANDARD	CDS ASSOCIATES	ES-3-10C

FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
5	OHIO		



TYP. MAST ARM MOUNTING
(ALSO SEE STD. DWG. ES-1-5)



WARNING SIGN & SIGNAL INSTALLATIONS
TYP. SPAN WIRE MOUNTING

GENERAL NOTES

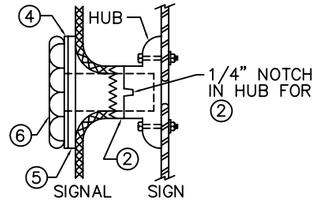
SIGNALS AND OR WARNING SIGN & SIGNALS SHALL BE INSTALLED WITH 17 FEET OF CLEARANCE TO PAVEMENT GRADE. IF MOUNTED TO SPAN SHOULD BE 17' FROM STREET AND/OR LEVEL WITH OTHER EQUIPMENT ON SPAN.

STEEL PIPE & FITTINGS SHALL BE GALV. SCHED. 40. OR SCHED. 40 ALUM. PIPE WITH ALUM. FITTINGS.

ALL HARDWARE FOR SECURING HUBS TO SIGN CABINETS SHALL BE STAINLESS STEEL NUTS, BOLTS & WASHERS SIZED TO HUB OPENINGS.

HUBS SHALL BE SIZED TO 1-1/2 INCH PIPE. PROVIDE ENTRANCE HOLE (1 INCH) FOR WIRE ENTRY INTO SIGN CABINET. SECURE WEATHERPROOF SEAL OF HUBS TO SIGNS WITH GASKETS.

(B) TYP SIGNAL TO SIGN ATTACHMENT DETAIL



STATE OF OHIO
STEVEN GERALD BAILEY
49331
REGISTERED PROFESSIONAL ENGINEER

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

SPECIAL TRAFFIC SIGNAL & SIGN ARRANGEMENT DETAILS

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED: Steve Bailey DATE: 3-4-99

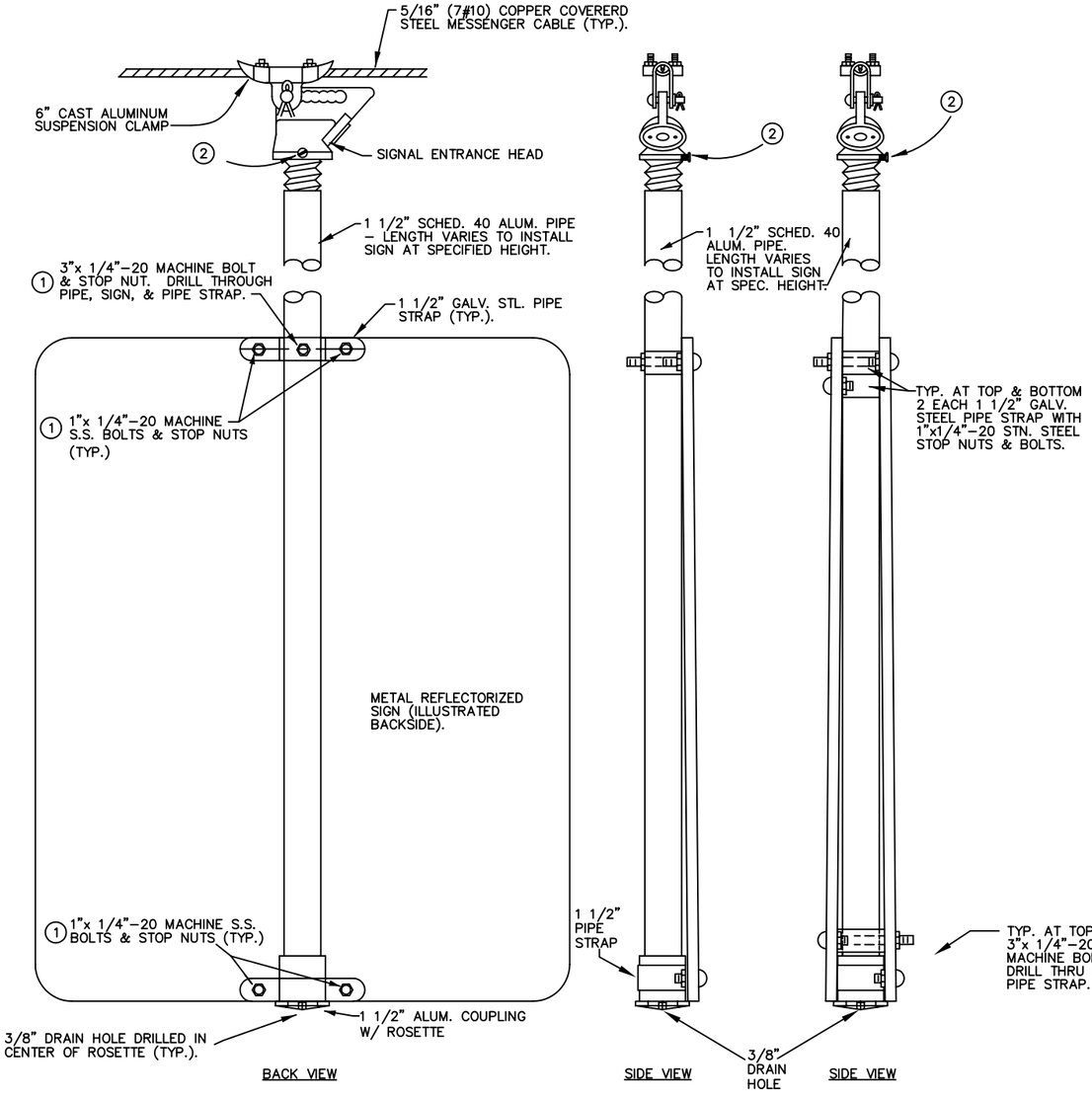
S.C.H.	Steve Bailey	8/30/04	UPDATE
T.E.		3/1/98	

DESIGN	REVISION APPROVED	DATE	WO #	SCALE	SOURCE	DRAWN	FILE NO.
R.R.R.		6/26/92			NEW STANDARD	CDS ASSOCIATES	ES-3-10B

FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
	OHIO		

NOTES:

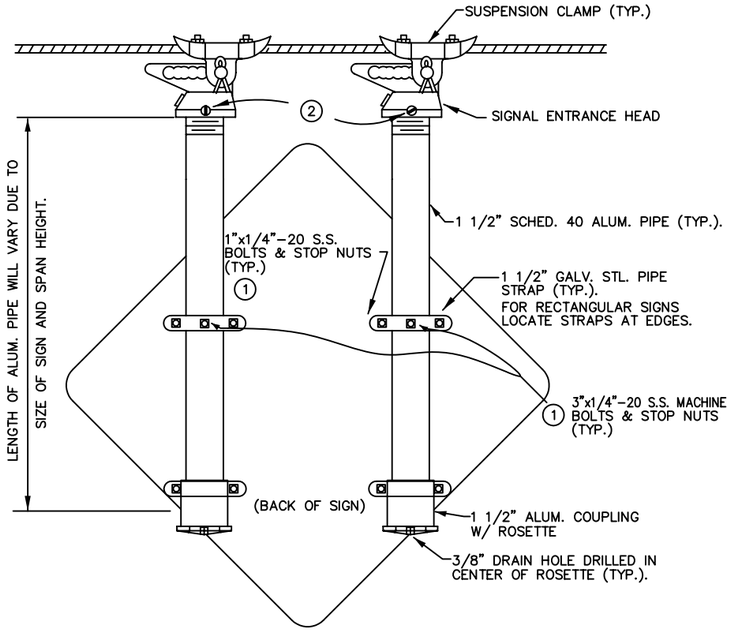
1. ALL BOLTS, STOP NUTS, AND WASHER SHALL BE STN. STEEL. ALL PIPE, SCHED. 40 ALUMINUM.
2. 1/4" x 20 STAINLESS STEEL SET SCREW.



TYPICAL INSTALLATION STANDARD REFLECTORIZED SIGN

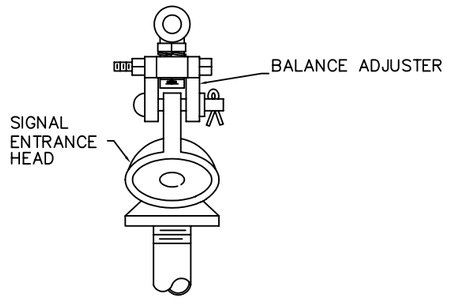
(SIZES 24"x24", 24"x30")

BACK TO BACK (DOUBLE FACE) SIGN ATTACHMENT

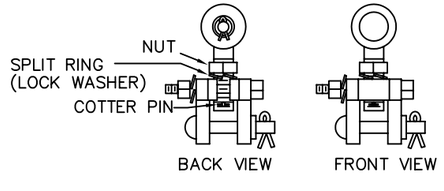


MOUNTING FOR LARGE DIAMOND– SHAPE SIGN

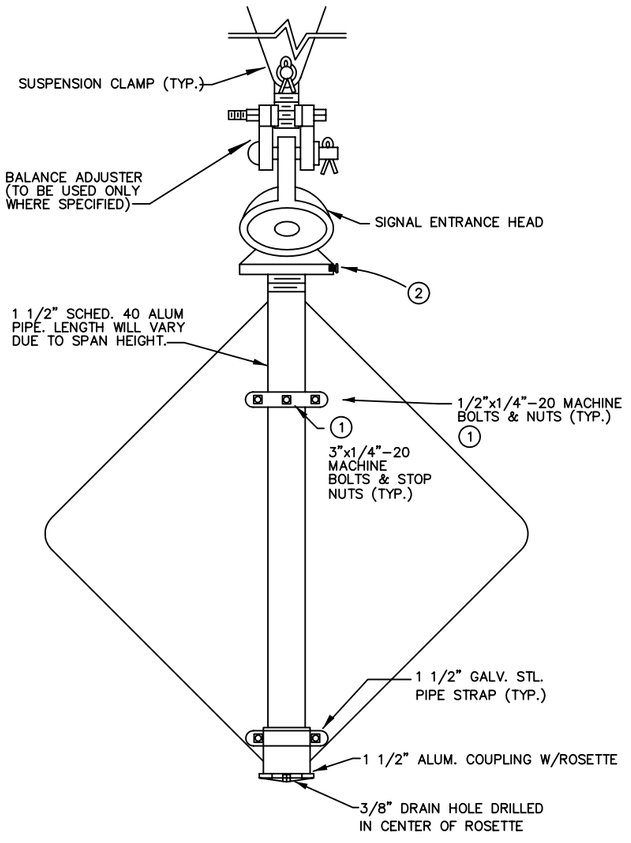
(SIZES 30"x30", 36"x36")
OR STANDARD SIGNS WIDER THAN 24"



FRONT VIEW OF BALANCE ADJUSTER & SIGNAL ENTRANCE HEAD



GALV. BALANCE ADJUSTER



MOUNTING FOR SMALL DIAMOND–SHAPE SIGN

(SIZE 24"x24")

STATE OF OHIO
STEVEN GERALD BAILEY
49331
REGISTERED
PROFESSIONAL ENGINEER

TRAFFIC SIGNAL INSTALLATIONS (ES–3)

REFLECTORIZED SIGN INSTALLATION DETAILS

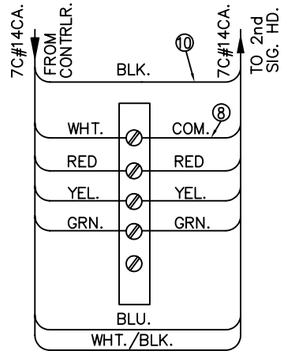
CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED: Steve Bailey DATE: 3-4-99

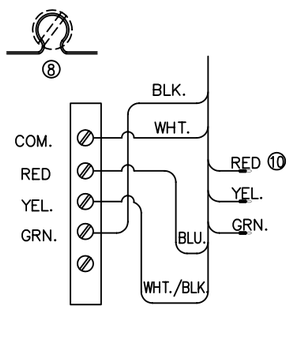
S.C.H.	Steve Bailey	9/15/04	UPDATE
T.E.		3/1/98	

DESIGN	REVISION APPROVED	DATE	WO #	SCALE	SOURCE	DRAWN	FILE NO.
R.R.R.		12/06/94		N.S.			ES–3–10A

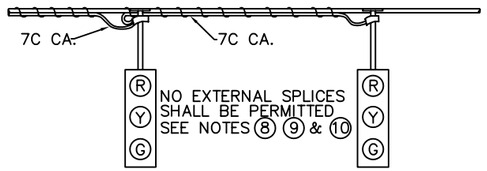
FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
5	OHIO		



1st. SIGNAL HEAD



2nd SIGNAL HEAD



THE 7C CA. SHALL BE ROUTED IN & OUT OF FIRST SIGNAL HEAD IN THIS CASE, EACH SIGNAL HEAD SHALL BE FURNISHED WITH A 5 POLE WIRING TERMINAL. SEE NOTES ⑧, ⑨ & ⑩ FOR WIRING CONNECTIONS.

WIRING DETAIL

NUMBER OF CONDUCTORS	CONDUCTOR COLOR CODE	VEHICLE SIGNALS			PEDESTRIAN SIGNALS	REVERSIBLE LANE CONTROL SIGNAL ⑤	PHOTO ELECTRIC CELL (FOR ISLAND LIGHTING)	WARNING SIGNALS	DETECTORS NOTE ④	SERVICE	OTHERS
		1–3 OR 4 SECTION TRAFFIC SIGNAL HEADS	2–3 SECTION TRAFFIC SIGNAL HEADS SEE NOTE ①	1–5 SECTION TRAFFIC SIGNAL HEADS	1 PED. SIGNAL W/AUDIBLE DEVICE INCL. PUSHBUTTON			EMERGENCY VEHICLE ADVANCE WARNING OR FLASHING SIGNAL	LOOP OR MAGNETIC AMPLIFIER LOCATED REMOTE FROM CONTROLLER		ILLUMINATED SIGNS PUSHBUTTONS SINGLE UNITS FLASHERS NOTE ③ SINGLE UNIT SIGNAL HDS. ISLAND LIGHTING
1	BLK.	1ST ARROW SIGNAL (OR SPARE)	GRN. SIGNAL (2ND HEAD) & SPARE (1ST HEAD)	GREEN ARROW	SPARE	GREEN ARROW (IN BOUND)	120V. SERVICE	SIGN OR SPARE	120V. SERVICE	120V. SERVICE OR 240V. ST. LIGHT SERVICE	120V. OR ENERGIZED LINE
2	WHT.	COMMON	COMMON	COMMON	COMMON	COMMON	COMMON	COMMON	COMMON	COMMON	COMMON
3	RED	RED SIGNAL	RED SIGNAL (1ST HEAD)	RED SIGNAL	DONT WALK	RED X (OUT BOUND)	120V. CONTROL. LINE FROM CELL TO LIGHTING CONTRACTOR	FLASH SIGNAL	DETECTOR TERMINAL CHANNEL 1	240V. ST. LIGHT SERVICE	
4	GRN.	GRN. SIGNAL NOTE ②	GRN. SIGNAL (1ST HEAD)	GRN. SIGNAL	WALK ⑦	GREEN ARROW (OUT BOUND)			DETECTOR TERMINAL CHANNEL 2	EQUIPMENT GROUND REQUIRED FOR 240V. CKTS.	
5	YEL. (OR ORN.)	YELLOW SIGNAL	YELLOW SIGNAL (1ST HEAD)	YELLOW SIGNAL	AUDIBLE DEVICE (FLDW) ⑦	RED X (IN BOUND)		ALTERNATE FLASHING SIGNAL (OR SPARE)	DETECTOR TERMINAL CHANNEL 3		
6	BLU		RED SIGNAL (2ND HEAD)		PUSHBUTTON				DETECTOR TERMINAL CHANNEL 4		
7	WHT. BLK.-TR.		YELLOW SIGNAL (2ND HEAD)	YELLOW ARROW	PUSHBUTTON				SPARE		
CABLE REQUIRE-MENTS		1–7C#14CA.	1–7C#14CA.	1–7C#14CA.	1–7C#14CA.	1–7C#14CA.	1–3C#14CA. ⑪	1–7C#14CA.	1–7C#14CA.	2–#6CA. OR ⑥ 3–#6CA.	1–2C#12CA. (ISLE LIGHTING CIRCUIT)

NOTES

ALL TRAFFIC SIGNAL CABLE SHALL BE SOLID OR STRANDED COPPER CONDUCTORS AND SHALL BE RATED 600V.– ISMA SPEC.19–1 OR 20–1, UNLESS OTHERWISE SPECIFIED
ALL CABLES SHALL BE ROUTED FROM THE CONTROLLER, DIRECTLY TO THE DEVICE. (HOME RUN)
EXCEPTIONS:

NOTE ① WHERE (2) TWO VEHICLE SIGNALS ARE CONNECTED TO ONE (1) 7C#14 CA, THIS REFERS TO 2 SIGNALS ON THE SAME MESS. CA., OR MAST ARM, AND WHICH SERVICE THE SAME APPROACH OR PHASE. REFER TO WIRING DETAIL THIS SHEET.

NOTE ② CONNECT GREEN CONDUCTOR TO ARROW WHERE ARROW IS USED INSTEAD OF GREEN LENS (TYP.)

NOTE ③ WHEN WIRING ILLUMINATED OVERHEAD SIGNS, USE 1–2C#12 CA. & CONNECT IN PARALLEL AS MANY AS 4 OR 5 SIGNS, SO LONG AS THE VOLTAGE DROP IS WITHIN 5%. SEE CHART.

NOTE ④ DETECTOR LEAD–IN CABLE SHALL BE CONNECTED FROM LOOP TO AMPLIFIER AND SHALL BE 2C#14 SHIELDED (19x 27 STRANDING). CONNECT SHIELD AT AMPLIFIER CABINET GROUND ONLY.

NOTE ⑤ CABLE CONNECTING SIGNAL HEAD TO CONTROL STATION CABINET.

NOTE ⑥ POWER & SERVICE CONDUCTORS NORMALLY #6 BUT MAY BE SPECIFIED LARGER. CONDUCTOR SHALL BE 600 VOLT, RHH/RHW/USE INSULATED.

NOTE ⑦ AUDIBLE DEVICE FOR BLIND PEDESTRIANS. PROVIDE CONDUCTORS FOR PROPOSED OR FUTURE DEVICES. CONNECT WALK DEVICE TO WALK SIGNAL CONDUCTOR. PROVIDE SEPARATE CONDUCTOR TO CONTROLLER FOR FLASHING DONT WALK DEVICE.

NOTE ⑧ TYPICAL METHODS FOR CONNECTING TO TERMINAL STRIP.
1) REMOVE INSULATION FROM. APPROX. 1" OF CONDUCTOR AND LOOP AROUND TERMINAL OR
2) CONNECT BOTH CONDUCTORS OF SAME COLOR TO A RING TONGUE OR FORKED TONGUE LUG.

NOTE ⑨ TYPICAL METHOD FOR DEAD–END CONDUCTOR W/NO TERMINAL CONNECTION.
1) USE INSULATED SPLICE BUTT TYPE CONNECTOR. T & B 2 RB–14, BURNDY #SN–14, 3M CO. "INSULINK" OR APPROVED EQUAL. OR
2) TAPE BACK CONDUCTOR END.

NOTE ⑩ TYPICAL METHOD FOR CONTINUING CONDUCTOR THRU SIGNAL HEAD W/O TERMINAL CONNECTION.
1) MAINTAIN UNUSED CONDUCTOR IN AND OUT OF SIGNAL HEAD W/O CUTTING OR SPLICING. OR
2) SPLICE UNUSED CONDUCTORS W/INSULATED SPLICE BUTT CONNECTORS. SEE NOTE ⑨ FOR CONNECTOR TYP.

NOTE ⑪ 3#14 CABLES NORMALLY USED WHERE PHOTOCELL CONTROLS CONTACTOR COIL ONLY. WHERE PHOTOCELL USED TO PROVIDE DIRECT SERVICE FEED, USE 3C#12.

ILLUMINATED SIGNS

NO. OF SIGNS	ALLOWABLE MAX. LENGTH OF 2C#12 FROM CONTRLR. TO SIGNS
2	1000'
3	750'
4	450'
5	350'

STATE OF OHIO
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49331
REGISTERED
PROFESSIONAL ENGINEER

S.C.H.	Steve Bailey	8/30/04	UPDATE
T.E.		3/1/98	

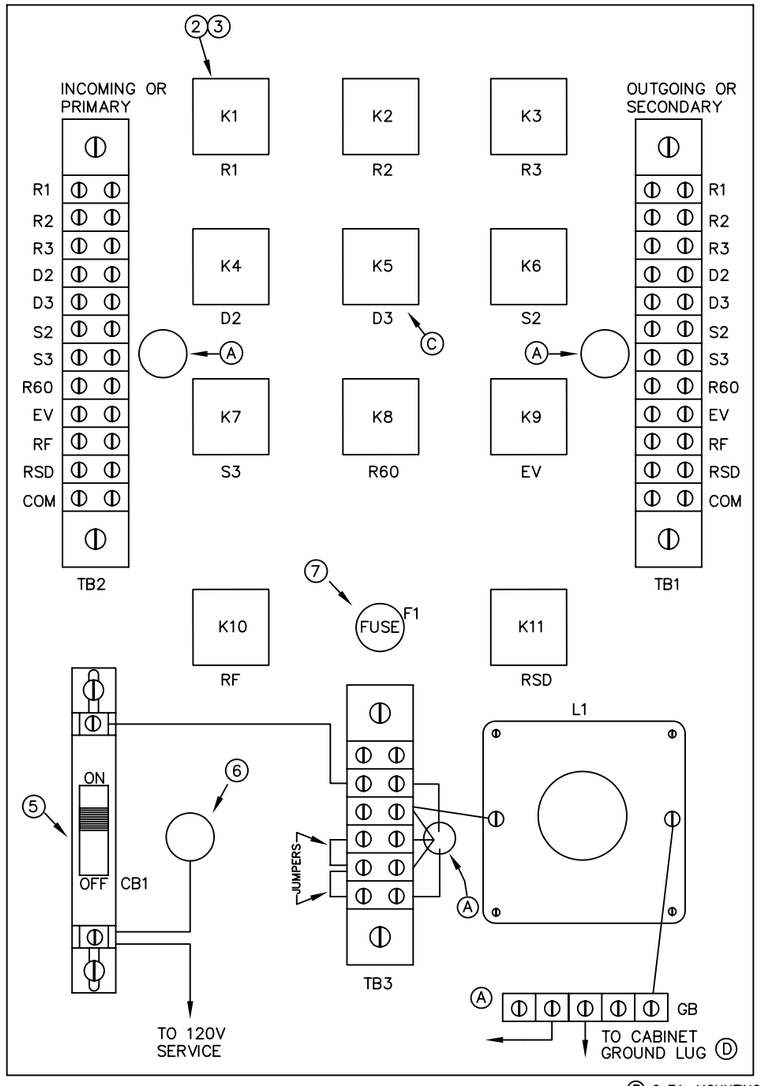
TRAFFIC SIGNAL INSTALLATIONS (ES–3)

WIRING CODE & SPLICING DETAIL

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steve Bailey DATE 3–4–99

DESIGN	REVISION APPROVED	DATE	WO #	SCALE	SOURCE	DRAWN	FILE NO.
		11/21/94		–		VGRD	ES–3–9



PANEL LAYOUT (SURFACE)

LIST OF MATERIALS

	PART NO QUANTITY	DESIG	DESCRIPTION * OR APPROVED EQUAL
①	1		CHASSIS 11" WIDE. 17" LONG, 2" DEEP. 18 GA. STL.ZINC PLATED FINISH.
②	11	K1–K11	RELAYS: DPDT, 10 AMP. CONTINUOUIS DUTY RATED. POTTER–BRUMFIELD KRP–11AG ESSEX (RBM) 93P908, MAGNECRAFT N88 ACPX.*
③	11	K1–K11	RELAY SOCKET 8 PIN KEYED OCTAL OF HIGH DIELECTRIC PHENOLIC. AMPHENOL, CINCH*
④	3	TB1, TB2, TB3	TERMINAL STRIPS: 600 VOLT BARRIER TYPE, 30 AMP, TUBULAR SCREW TYPE POLES WITH PRESSURE PLATES.
⑤	1	CB–1	15 AMP, MAGNETIC TRIP TYPE CIRCUIT BREAKER (SURFACE MOUNTED ON CHASSIS). SQUARE D, QO SERIES, CUTLER–HAMMER CH*
⑥	1	A1	LIGHTING ARRESTOR JOSLYN # J9200–3 *
⑦	1	F1	FUSE & HOLDER SLO–BLO, DUAL ELEMENT GLASS TUBE TYPE WITH EXTRACTOR (PANEL MTD.) TYPE HOLDER. BUSS MDX–5 LITTLEFUSE 3 AG 313005
⑧	1	L1	69 WATT TRAFFIC SIGNAL LAMP WITH PORCELAIN CLEAT TYPE RECEPTACLE. HUBBLE, KNOX *
⑨	1	G3	5 POLE SILICONE–BRONZE OR BRASS GROUNDING BUSS. ILSCO D167 CUTLER–HAMMER CH9G5*

NOTES

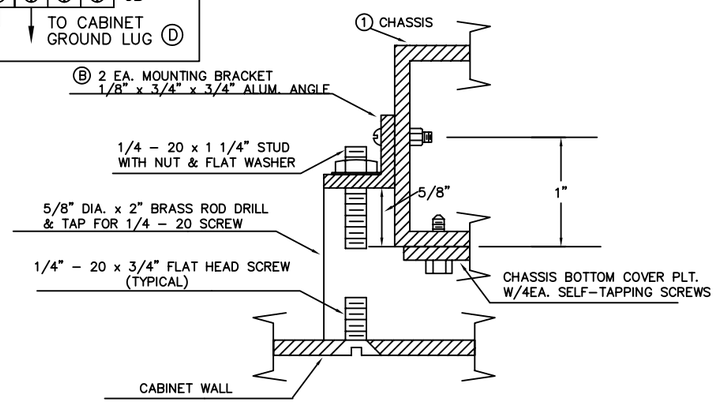
Ⓐ DRILL WIRE FEED–THRU HOLES, DEBURR AND PROVIDE RUBBER GROMMETS.

Ⓑ CHASSIS MOUNTING BRACKET. SEE DETAIL.

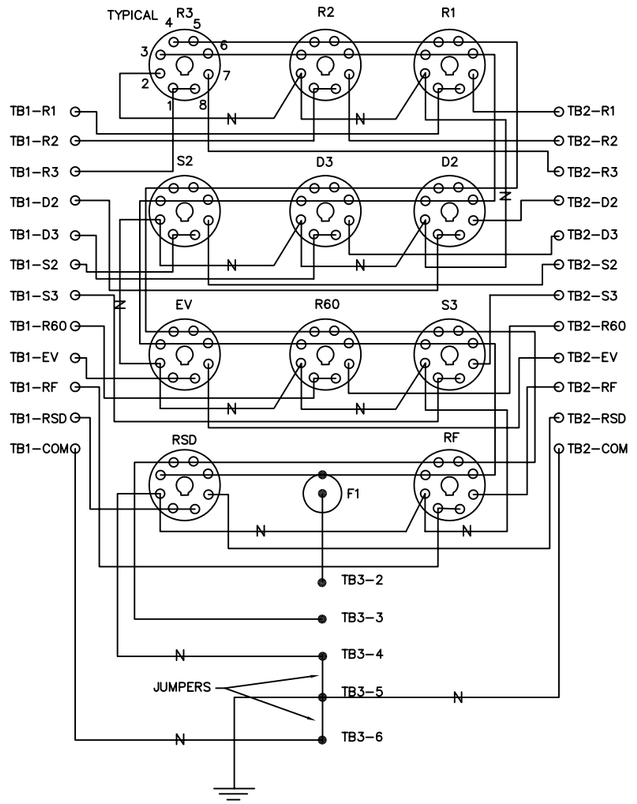
Ⓒ LABEL EACH TERMINAL & RELAY WITH PERMANENT MARKING OR LABELING. LABELING FOR TERMINALS MAY BE ON THE TERMINALS, OR AS SHOWN.

Ⓓ PROVIDE GROUND LUG ILSCO # 6T–6 OR BLACKBURN # L–70* ON CABINET INSIDE BOTTOM FOR EQUIPMENT GROUND, CHASSIS GROUND & FEED TO DRIVEN GROUND.

SOLDER GROUND BUSS "GB" TO CHASSIS AT THE MOUNTING NUT INSIDE THE CHASSIS.

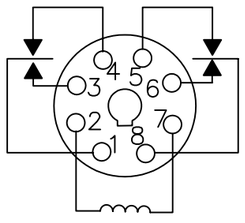


TYPICAL SECTION – MOUNTING CHASSIS TO CABINET



ALL WIRING 16 GA. THW OR THWN, 600 VOLTS. ALL CONDUCTORS BLACK, EXCEPT COMMON (N) WHICH SHALL BE WHITE.

WIRING DIAGRAM

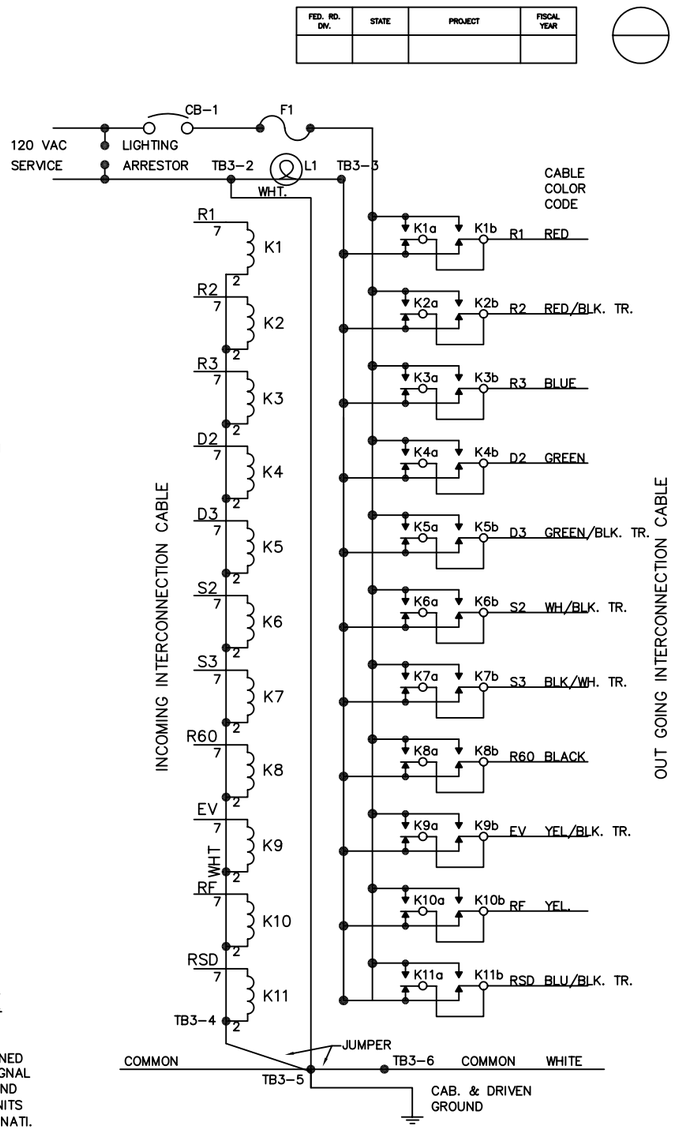


TYPICAL RELAY SOCKET KEY

GENERAL NOTE

THE RELAY STATION IS DESIGNED PRINICIPALLY FOR TRAFFIC SIGNAL INTERCONNECTING SYSTEMS AND IS INTERCHANGEABLE WITH UNITS USED BY THE CITY OF CINCINNATI.

THE RELAY STATION MAY BE ADAPTED TO OTHER SYSTEMS BY UTILIZING THE CONDUCTOR COLOR CODE AND DISREGARDING THE LABELED DE–SIGNATIONS.



SCHEMATIC DIAGRAM

FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR

STATE OF OHIO
STEVEN GERALD BAILEY
49331
REGISTERED
PROFESSIONAL ENGINEER

TRAFFIC SIGNAL INSTALLATIONS (ES–3)

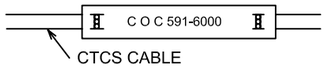
RELAY STATION WIRING DIAGRAM

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

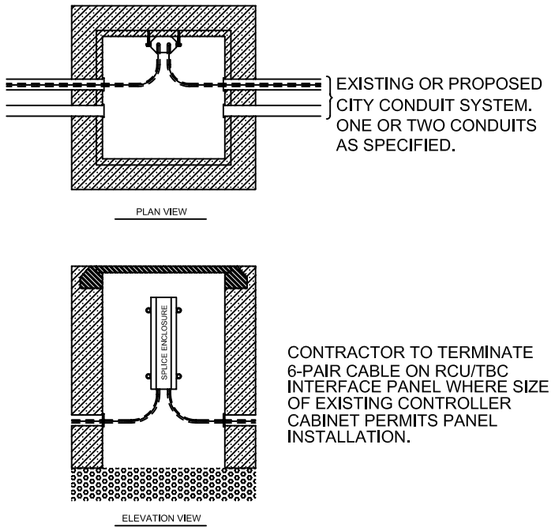
APPROVED Steve Bailey DATE 4–27–05

DESIGN	REVISION APPROVED	DATE	WO #	SCALE	SOURCE	DRAWN	FILE NO.
		8/30/04		–		S.C.H.	ES–3–8

CABLE IDENTIFICATION TAGS



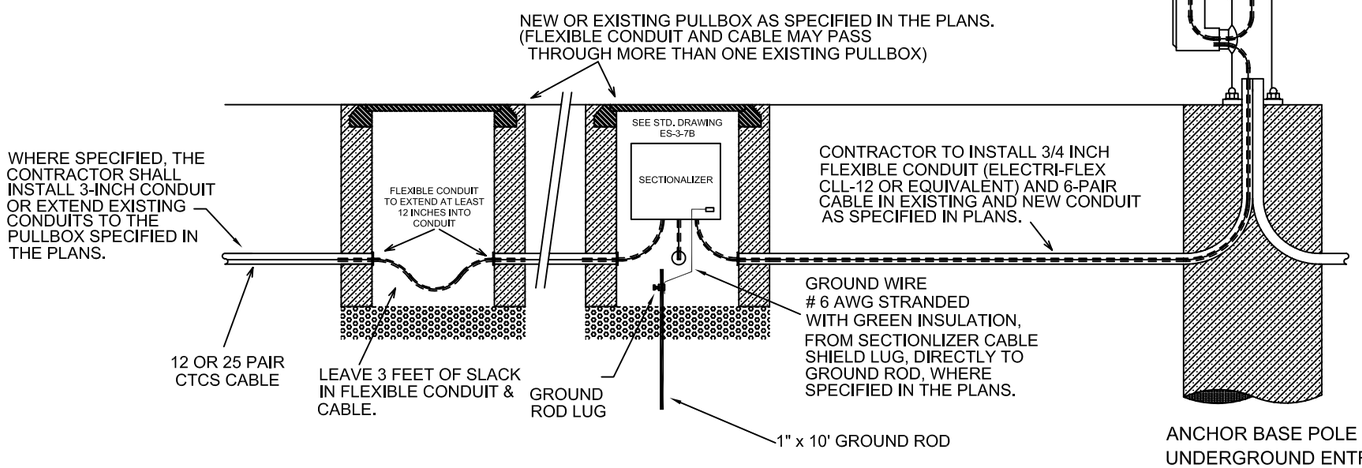
TAGS SHALL BE WEATHERPROOF PLASTIC WITH INDELIBLE, IMPRINTED TEXT AS SHOWN. THEY SHALL BE A MINIMUM OF 4" LONG. TAGS SHALL BE ZIP TIED TO CTCS CABLE AT EVERY POLE ATTACHMENT AND PULLBOX ENTRY.

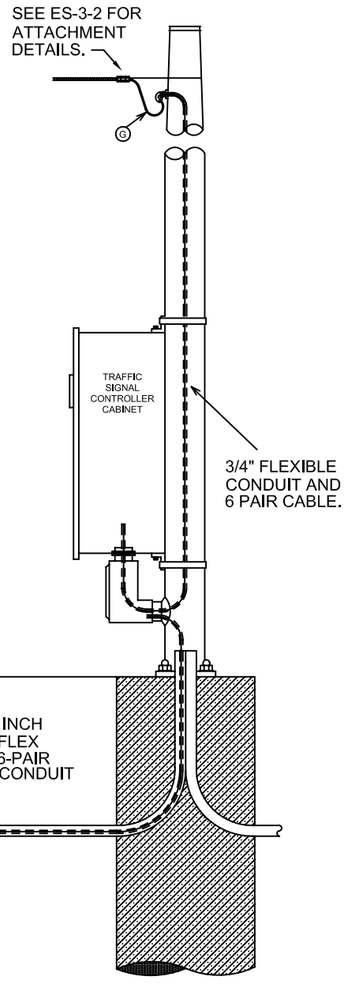


TYPICAL DETAIL OF SPLICE ENCLOSURE IN CITY CONDUIT SYSTEM WHERE CONTRACTOR IS SPECIFIED TO SPLICE MULTI PAIR CABLE. WHERE SPACE PERMITS, SECURE ENCLOSURE TO PULLBOX WALL WITH GALVANIZED, OR STAINLESS STEEL SCREW ANCHORS AND SPACERS.

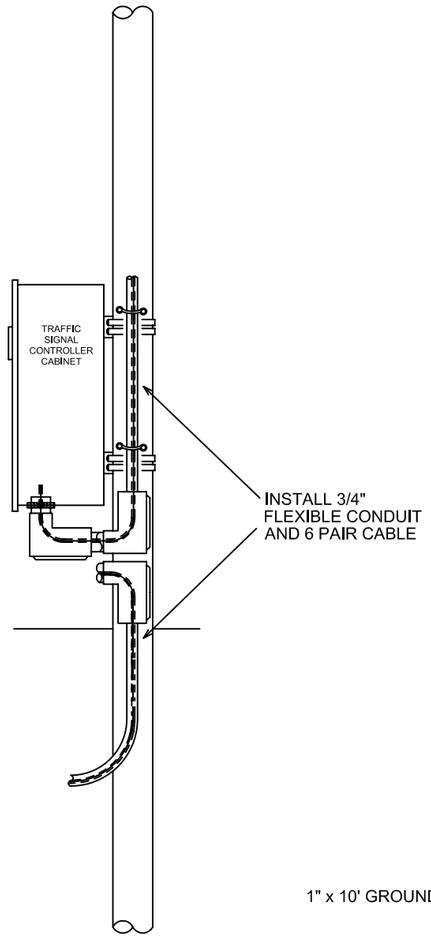
PULLBOXES

REFER TO STANDARD DRAWING ES-2-1 FOR INSTALLATION OF PULLBOXES IN OTHER AREAS.

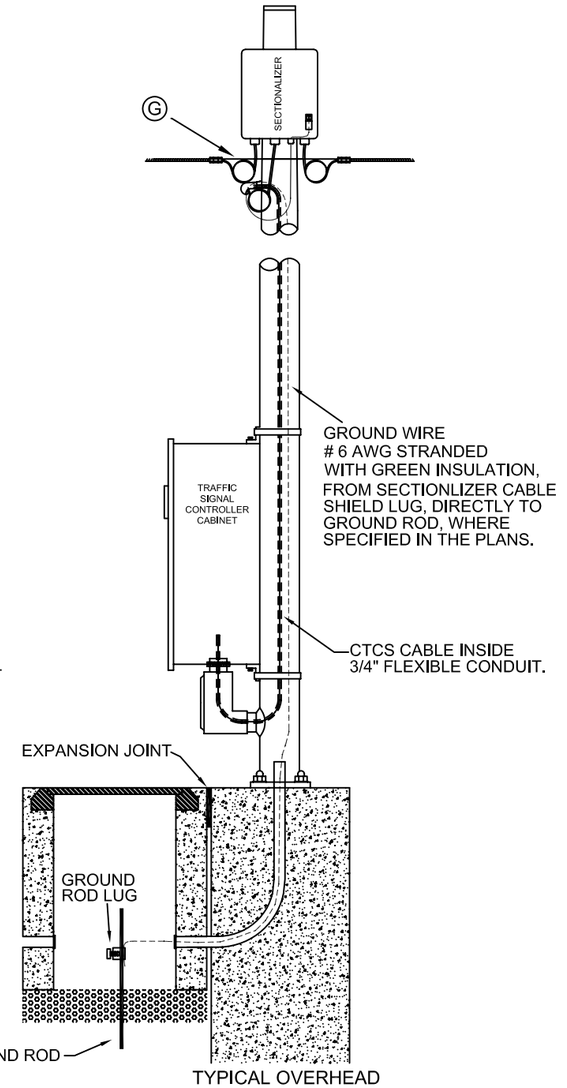




ANCHOR BASE POLE UNDERGROUND ENTRY OR AERIAL ENTRY.



WOOD POLE OR EMBEDDED TYPE STEEL POLE WITH UNDERGROUND OR AERIAL ENTRY.



TYPICAL OVERHEAD GROUNDING.

UNDERGROUND COMMUNICATION CABLE ACCESS TO CONTROLLER CABINET

ALL CTCS CABLES SHALL BE IDENTIFIED IN PULLBOXES WITH WEATHERPROOF PLASTIC TAGS DETAILED ABOVE AND ZIP TIED TO THE CABLE.

Ⓖ ALL SPANS SHOULD BE BOND TO EACH OTHER AND GROUNDED TO THE POLE GROUND WITH A SOLID #6 BARE COPPER GROUND WIRE. (DO NOT CONNECT TO THE SHIELD OF THE CTCS CABLE)

STATE OF OHIO
STEVEN GERALD BAILEY
49331
REGISTERED PROFESSIONAL ENGINEER

TRAFFIC SIGNAL INSTALLATION (ES-3)

CTCS SYSTEM FROM CINTI. BELL MANHOLE TO CITY PULLBOX

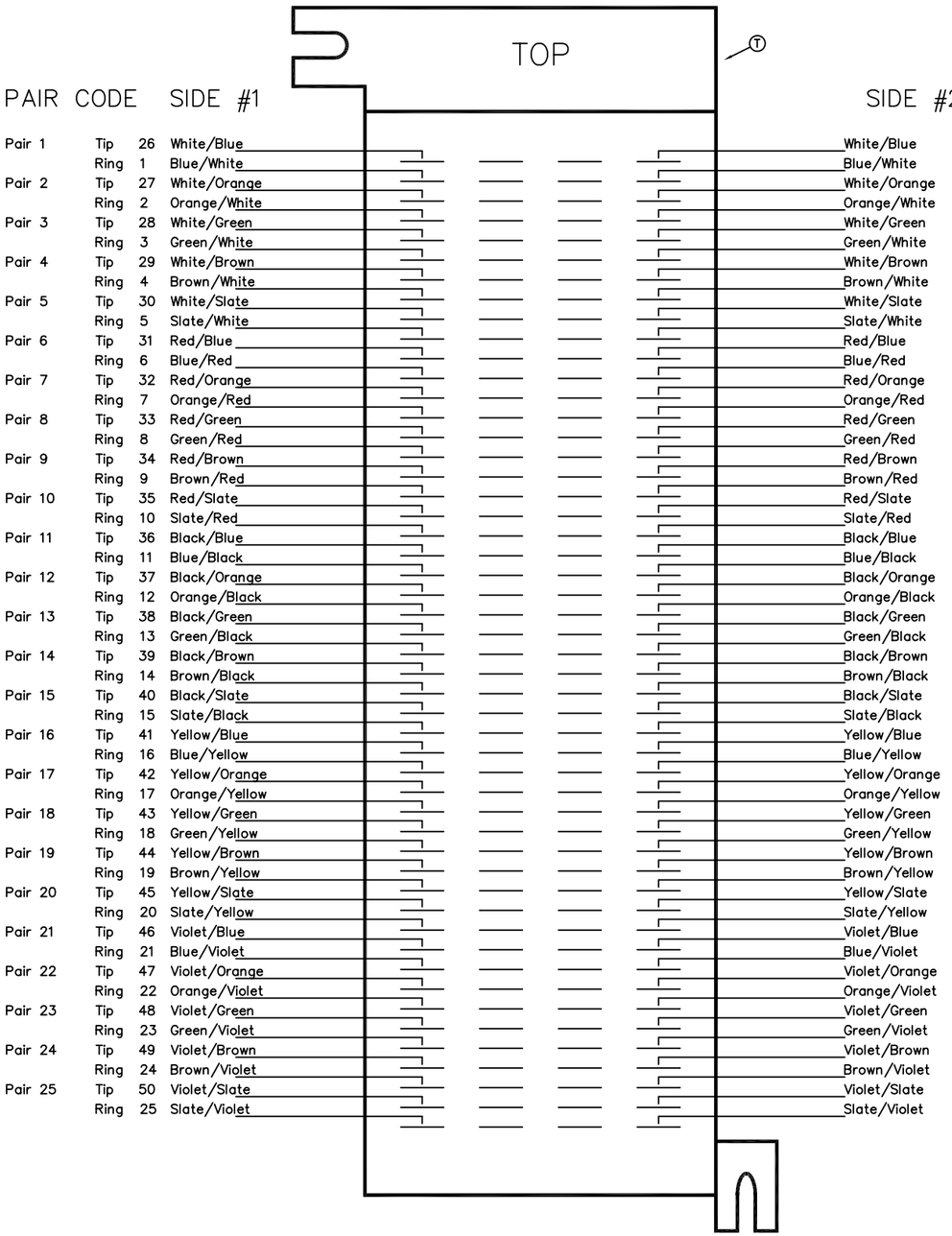
CITY OF CINCINNATI
DEPT. OF TRANSPORTATION AND ENGINEERING
DIV. OF TRAFFIC ENGINEERING

APPROVED Steve Bailey DATE 4-27-05

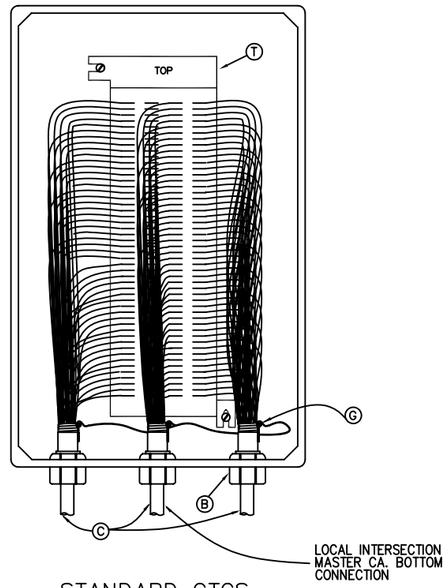
S.C.H.	Steve Bailey	2/3/05	UPDATE
DESIGN	REVISION APPROVED	DATE	W.O.#
MK		11/1/94	—

SCALE	SOURCE	DRAWN	FILE NO.
NONE	—	PWM	ES-3-7C

FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
5	OHIO		



CENTER CABLE OMITTED WHEN ONLY TWO CABLES ARE CONNECTED.



STANDARD CTCS TYPE SECTIONALIZER

GENERAL NOTES

Ⓑ STRAIN RELIEF CORD CONNECTOR, STRAIGHT, THOMAS & BETTS OR EQUIVALENT FOR UNDRGROUND LOCATIONS USE SEALING HUB, THOMAS & BETTS #H075-TB OR EQUIVALENT.

Ⓒ CTCS CABLE SHALL BE TWISTED PAIR, SHIELDED COMMUNICATIONS CABLE # 24 AWG, UNLESS OTHERWISE SPECIFIED. CABLE SHALL MEET REA SPECIFICATION PE-89, TYPE BJFC AND SHALL BE PETROLATUM FILLED. SHIELDING SHALL BE 0.005 INCH OR 0.01 INCH GOPHER RESISTANT, WHERE SPECIFIED, SOLID COPPER TAPE SHIELD WITH OVERLAP TO PROVIDE 100% ELECTRICAL SHIELDING COVERAGE.

Ⓖ SCHOTCH LOK #4460 SHIELD CONNECTOR OR EQUIVALENT AND # 14 AWG COPPER BONDING JUMPER.

Ⓣ SIEMENS 66 TERMINAL BLOCK, SIEMENS #S66M1-50, BRACKET #S89B

CABINET FOR THE STANDARD AND FOR THE DUPLEX TYPE SECTIONALIZER SHALL BE NOMINAL 10" WIDE, 12" HIGH & 5" DEEP, EXCLUDING MOUNTING FLANGE. CABINET SHALL BE MADE OF 1/8" (MIN.) MOLDED FIBERGLASS NOT SUPPORTING COMBUSTION OR HEAT DISTORTION TO 350° F AND WITH A RATED MINIMUM

TENSILE STRENGTH OF 8,000 PSI
COMPRESSION STRENGTH OF 24,000 PSI
FLEX STRENGTH OF 18,000 PSI

CABINET SHALL BE WATERPROOF & RAINTIGHT, MEETING REQUIREMENTS OF NEMA TYPE 3R, AND SHALL BE EQUIPPED WITH A STAINLESS STEEL PIANO HINGE AT LEAST 8" LONG AND LUGGAGE LATCHES W/PADLOCK HASP. STAHLIN DIV. OF ROBROY INDUST. CAT. #J1210H SSL OR APPROVED EQUAL.

ALL CABLE CONNECTIONS TO BE PERFORMED BY TRAFFIC ENGINEERING. CONTACT TRAFFIC SERVICES BUREAU ONE WEEK PRIOR TO ARRANGE FOR CONNECTIONS.

STATE OF OHIO
STEVEN GERALD BAILEY
49331
REGISTERED
PROFESSIONAL ENGINEER

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

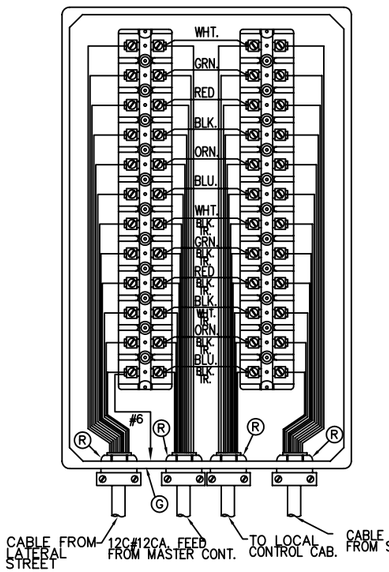
INTERCONNECTING CABLE & SECTIONALIZER INSTALLATION FOR CTCS SYSTEM

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steve Bailey DATE 3-4-99

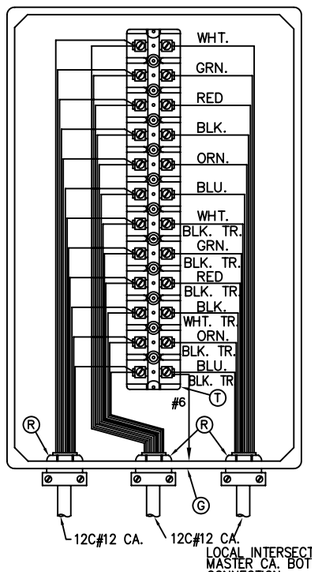
DESIGN	REVISION APPROVED	DATE	WO #	SCALE	SOURCE	DRAWN	FILE NO.
JEW		2/11/99		NONE		JEW	ES-3-7B

FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
5	OHIO		

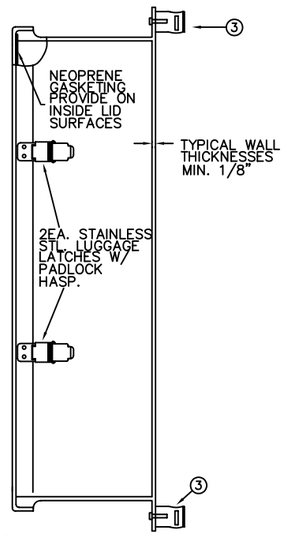


DUPLEX TYPE SECTIONALIZER
(NOT TO SCALE)

CENTER CABLE OMITTED WHEN ONLY TWO CABLES ARE CONNECTED.

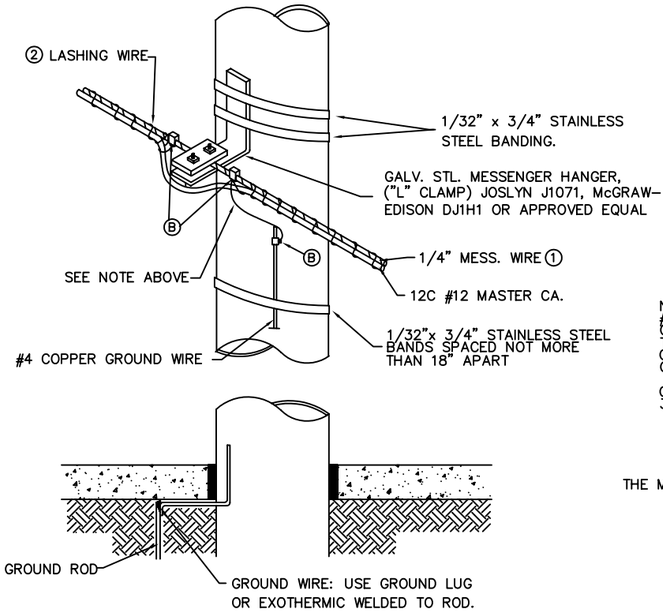


STANDARD TYPE SECTIONALIZER
(NOT TO SCALE)

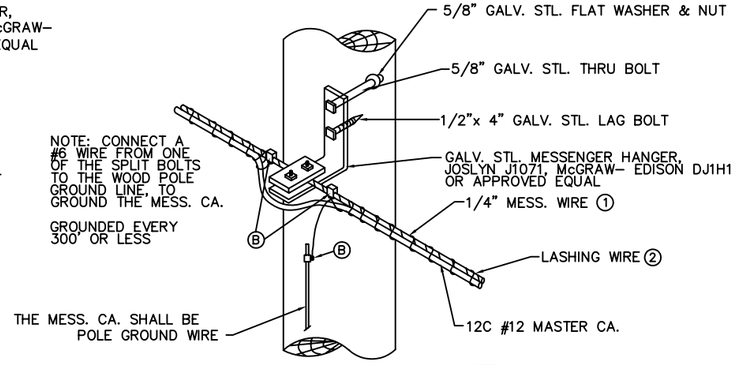


③ TYPICAL POLE MOUNTING
2 EA. STAINLESS STEEL BANDING STAND OFFS ONE CENTERED AT THE TOP AND BOTTOM OF THE BOX. BOX TO BE BANDED TO ALL POLES.

MOUNTING DETAILS
(SIDE VIEW)



STEEL POLE
MASTER CABLE HANGER INST.



Ⓑ SPLIT BOLT CONNECTOR
DOSSERT, BLACKBURN, McGRAW– EDISON OR APPVD. EQUAL

NOTE:
CABLE SAG BETWEEN POLES SHALL NOT EXCEED 2% OF SPAN LENGTH

WHEN WORKING WITH CTCS CABLE THERE IS TO BE NO SAG IN CABLE.

WOOD POLE
MASTER CABLE HANGER INST.

① – 1/4" MESS. CA. (3#9 or 7#12)

② – LASHING WIRE– #14 BARE COPPER OR PREFORMED LASHING RODS SECURED TO 1/4" MESS. CA.

GENERAL NOTES

TR MEANS SOLID COLOR WIRE WITH TRACER COLOR.

ALL TERMINAL STRIPS SHALL BE TWELVE(12) POLE AS SHOWN IN DETAIL, SEE DETAIL Ⓣ.

Ⓖ GROUNDING LUGS SHALL BE BLACKBURN L–125; T & B 1300 SERIES; OR APPVD. EQUAL. SEE DETAIL Ⓖ #6 AWG. BARE COPPER GROUNDWIRE; CONNECT FROM GROUND LUG ON CABINET TO POLE GROUND.

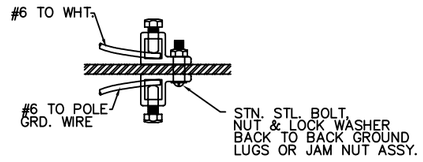
Ⓡ 3/4" ROMEX CONNERTOR.

CABINET FOR THE STANDARD AND FOR THE DUPLEX TYPE SECTIONALIZER SHALL BE NOMINAL 10" WIDE, 12" HIGH & 5" DEEP, EXCLUDING MOUNTING FLANGE. CABINET SHALL BE MADE OF 1/8" (MIN.) MOLDED FIBERGLASS NOT SUPPORTING COMBUSTION OR HEAT DISTORTION TO 350° F AND WITH A RATED MINIMUM

TENSILE STRENGTH OF 8,000 PSI
COMPRESSION STRENGTH OF 24,000 PSI
FLEX STRENGTH OF 18,000 PSI

CABINET SHALL BE WATERPROOF & RAINTIGHT, MEETING REQUIREMENTS OF NEMA TYPE 3R, AND SHALL BE EQUIPPED WITH A STAINLESS STEEL PIANO HINGE AT LEAST 8" LONG AND LUGGAGE LATCHES W/PADLOCK HASP. STAHLIN DIV. OF ROBROY INDUST. CAT. #J1210H SSL OR APPROVED EQUAL.

MASTER CABLE SHALL BE WIRED INTO EXISTING MASTER SYSTEMS ONLY UNDER SUPERVISION OF CITY MAINTENANCE PERSONNEL.



DETAIL Ⓖ

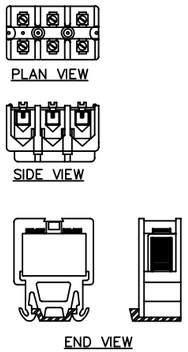
MASTER CABLE WIRING SCHEDULE

CONDUCTORS	CONDUCTOR COLOR	FUNCTIONS: CBD AREA	FUNCTIONS: ALL OTHER AREAS	FUNCTIONS: REVERSIBLE LANE SYS.
1	WHITE	COMMON	COMMON	COMMON
2	BLACK	CODE D FLASH	CODE D FLASH	CODE D FLASH
3	RED	OFFSET 1 IMPULSE	OFFSET 1 IMPULSE	OFFSET 1 IMPULSE
4	GREEN	DIAL 2 TRANSFER	DIAL 2 TRANSFER	DIAL 2 TRANSFER
5	BLUE	OFFSET 3 IMPULSE	OFFSET 3 IMPULSE	OFFSET 3 IMPULSE
6	ORANGE	CODE B FLASH	CODE B FLASH	CODE B FLASH
7	WHITE BLACK TR.	SPLIT 2	SPLIT 2	SPLIT 2
8	BLACK WHITE TR.	SPLIT 3	SPLIT 3	SPLIT 3
9	RED BLACK TR.	OFFSET 2 IMPULSE	OFFSET 2 IMPULSE	OFFSET 2 IMPULSE
10	GREEN BLACK TR.	DIAL 3 TRANSFER	DIAL 3 TRANSFER	DIAL 3 TRANSFER
11	BLUE BLACK TR.	R 60 IMPULSE	R 60 IMPULSE	INBOUND GREEN ARROW
12	ORANGE BLACK TR.	EV FLASH	CODE C FLASH	OUTBOUND GREEN ARROW

ALL TERMINAL SCREWS, LUGS, PLATES, NUTS & WASHERS SHALL BE OF SILICON BRONZE, NICKEL OR CADMIUM – PLATED STEEL OR BRASS OR APPVD. EQUAL NON CORROSIVE MATERIAL.

ALL INSULATING BARRIERS & FRAME SHALL BE MOLDED PHENOLIC, PORCLAIN, BAKELITE NYLON OR APPVD. HIGH QUALITY INSULATING MATERIAL RATED FOR 600 VOLT SERVICE (MIN.)

TERMINALS SHALL BE THE TUBULAR SCREW TYPE RATED FOR MIN. 30 AMP. SERVICE AND SIZED FOR 1 –#14 TO #4 WIRE (MIN.) ALLEN– BRADLEY BULLETIN 1492, SQUARE D TYPE KD– 1, BUCHANON TYPE 416 OR APPROVED EQUAL.



DETAIL Ⓣ

STATE OF OHIO
STEVEN GERALD BAILEY
49331
REGISTERED
PROFESSIONAL ENGINEER

TRAFFIC SIGNAL INSTALLATIONS (ES–3)

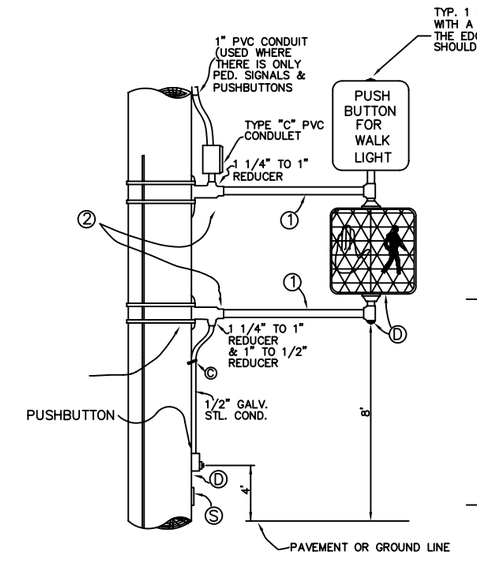
INTERCONNECTING CABLE & SECTIONALIZER INSTALLATION FOR THE 120 VOLT SYSTEM

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

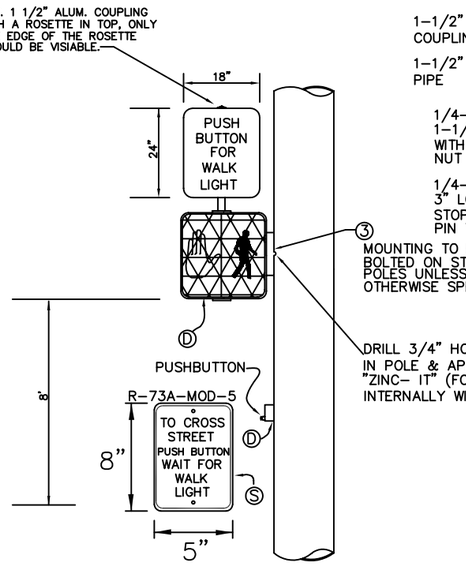
APPROVED Steve Bailey DATE 3–4–99

S.C.H.	Steve Bailey	8/27/04	UPDATE
DESIGN	REVISION APPROVED	DATE	WO #
		9/14/94	

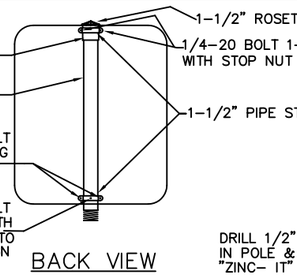
SCALE	SOURCE	DRAWN	FILE NO.
NONE		VGRD	ES–3–7A



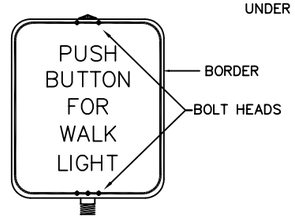
WOOD POLE INSTALLATION



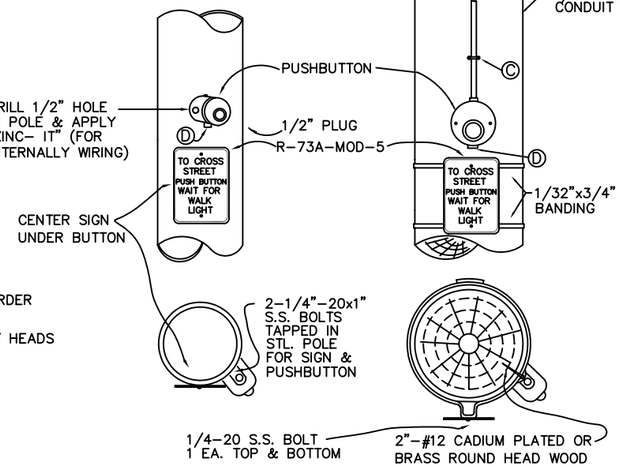
STEEL POLE INSTALLATION



BACK VIEW LARGE PUSHBUTTON SIGN



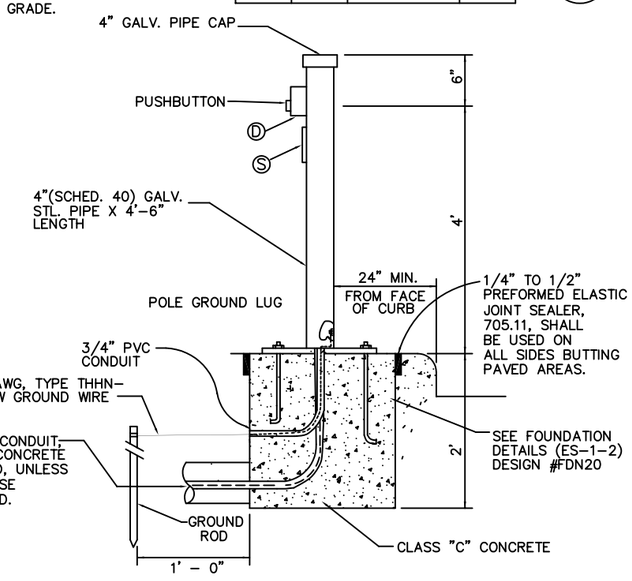
FRONT VIEW LARGE PUSHBUTTON SIGN



STEEL POLE

WOOD POLE

NOTE:
ALL PUSHBUTTONS SHOULD BE MOUNTED AT 48" TO THE CENTER FROM GRADE.



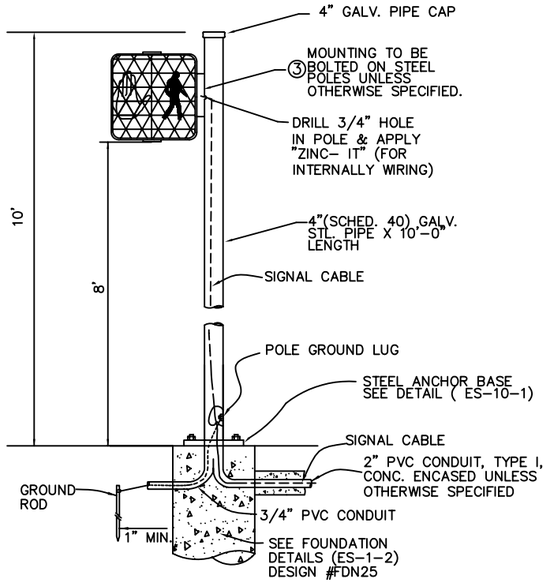
445 PUSHBUTTON PEDESTAL

TYPICAL PUSHBUTTON INSTALLATION

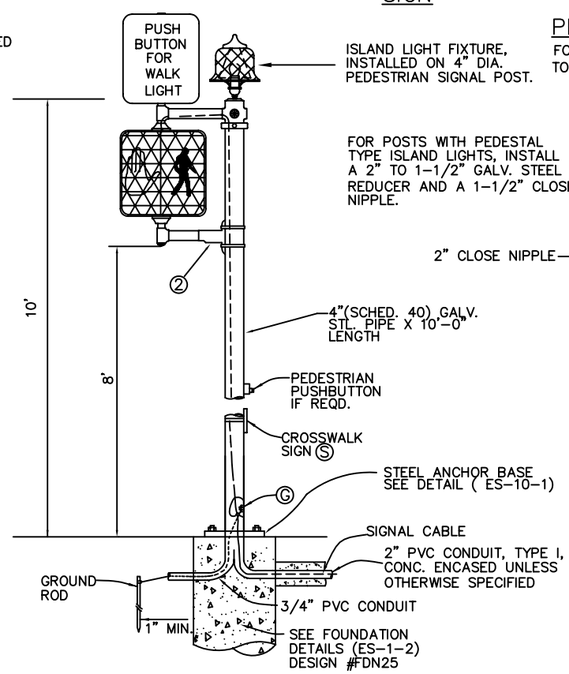
FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
	OHIO		

PEDESTRIAN SIGNAL PEDESTAL

WHEN 1045 HAS ONLY 1 PED. SIGNAL CLAMSHELL MOUNTING SHOULD BE USED AND IT SHOULD BE BOLTED TO THE POLE. IF THERE ARE MORE THAN ONE PED. SIGNAL, THEN THEY SHOULD BE MOUNTED 90 DEGREES FROM EACH OTHER AND BANDED AS SHOWN BELOW TO THE RIGHT.



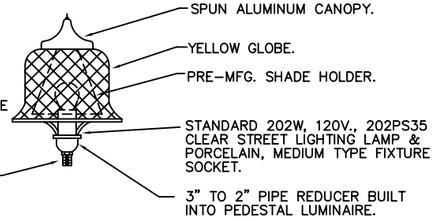
PEDESTRIAN SIGNAL PEDESTAL 1045



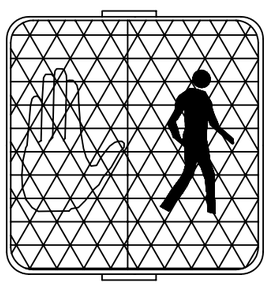
PEDESTRIAN SIGNAL PEDESTAL 1045 WITH PUSHBUTTON, PUSHBUTTON SIGN AND/OR PEDESTAL ISLAND LIGHT FIXTURE
FURNISHED BY CITY

PEDESTAL TOP

FOR MORE INFO, REFER TO ES-5-5



FOR POSTS WITH PEDESTAL TYPE ISLAND LIGHTS, INSTALL A 2" TO 1-1/2" GALV. STEEL REDUCER AND A 1-1/2" CLOSE NIPPLE.



L.E.D. HAND (DONT WALK)
L.E.D. WALKING MAN (WALK)

NOTES

- (C) – GALVANIZED STEEL OR MALLEABLE IRON CONDUIT CLAMPS EVERY 2' MAX
- (D) – DRILL 3/8" DRAIN HOLE IN LOWEST PART OF CABINET & FITTING.
- (G) – # 6 AWG BARE COPPER GROUND WIRE TO GROUND ROD.
- (S) – SMALL PUSHBUTTON SIGN, 5"x 8".

ALL ALUMINUM PIPE SHALL BE SCHEDULE40
PVC CONDUIT & FITTINGS SHALL BE SCHEDULE 40
ALL STEEL PIPE SHALL BE GALV. SCHED. 40, (ASTM-A53)
ALL STEEL CONDUIT SHALL BE 713.04
THREADED PARTS SHALL BE TREATED WITH "ZINC-IT" AT TIME OF ASSEMBLY.

1. PEDESTRIAN SIGNAL BRACKET SUPPORTS (PED. ARMS): 1-1/2 INCH ALUMINUM, UNLESS OTHERWISE SPECIFIED.
2. PEDESTRIAN SIGNAL BRACKETS (POLE PLATE): ALUMINUM CURVED TO FIT THE CONTOUR OF THE POLE, FOR 1-1/2" BRACKET ARMS WITH 1-1/4" HUB, EAGLE SIGNAL CO. #U1159, GENERAL TRAFFIC EQUIP. CORP. # H100124 OR AN APPROVED EQUAL.
3. CLAMSHELL MOUNTING BRACKET: TO BE USED ON ALL STEEL POLES UNLESS OTHERWISE SPECIFIED.

NOTE: SPECIFICATION NUMBERS REFER TO STATE OF OHIO, DEPT. OF TRANSP. "CONST. & MATERIAL SPECS." OR ASTM SPECS.

STATE OF OHIO
STEVEN GERALD BAILEY
49331
REGISTERED
PROFESSIONAL ENGINEER

S.C.H.	Steve Bailey	8/24/04	UPDATE
T.E.		3-1-98	
	RRR	7/29/72	

DESIGN	REVISION APPROVED	DATE	WO #
		10-12-94	

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

PEDESTRIAN SIGNALS & PUSHBUTTONS

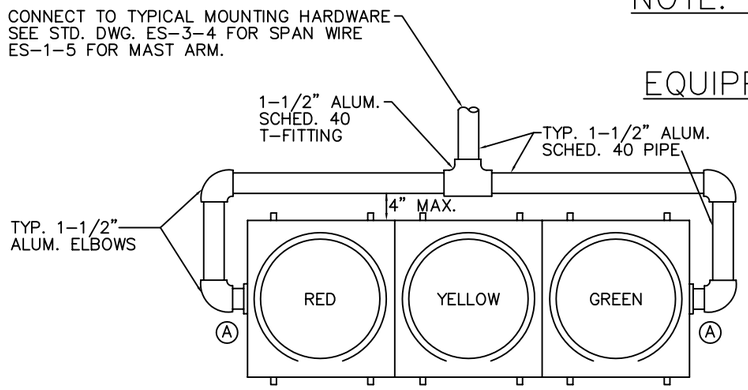
CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

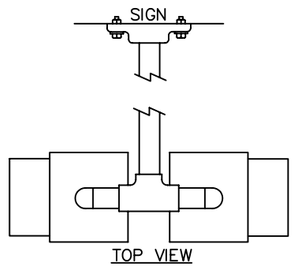
APPROVED: Steve Bailey DATE: 3-4-99

SCALE	SOURCE	DRAWN	FILE NO.
		MYAD	ES-3-6

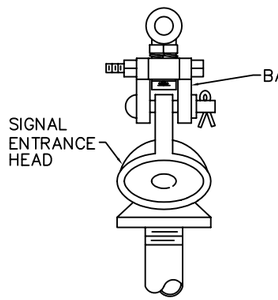
FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
5	OHIO		

NOTE: ALL TRAFFIC SIGNALS ARE TO BE L.E.D. AND EQUIPPED WITH TUNNEL VISORS



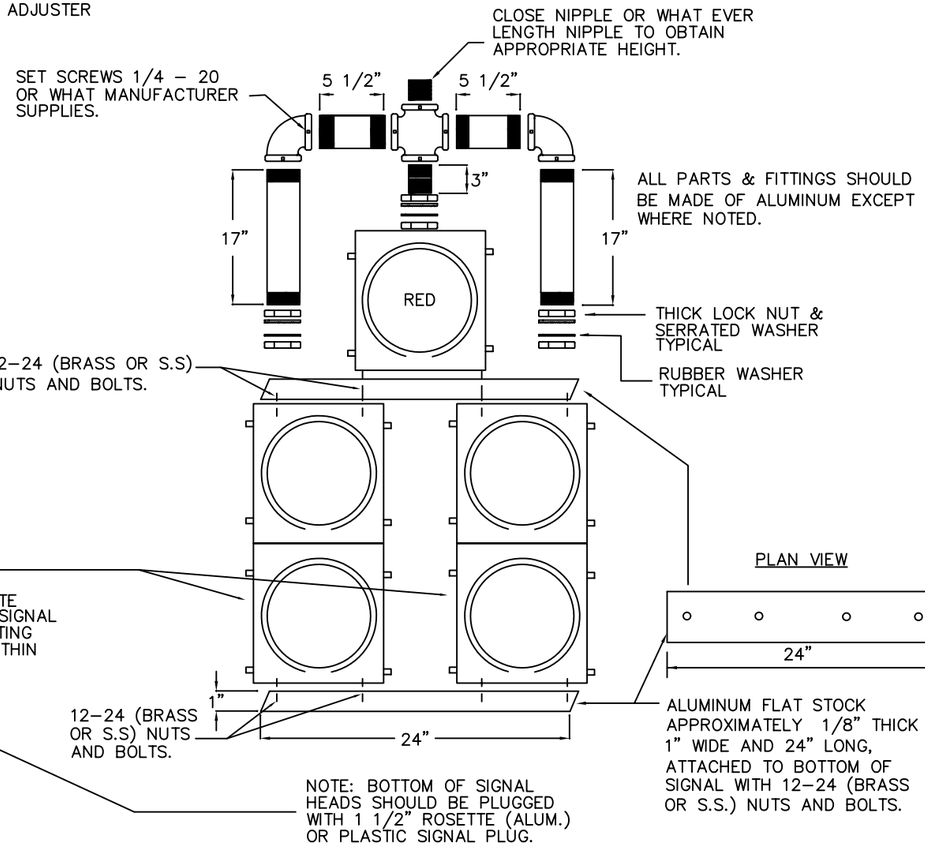


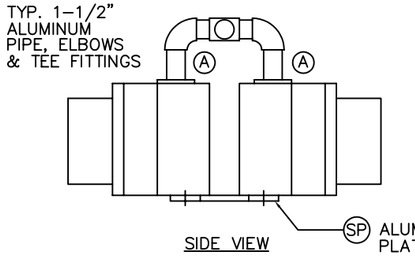
TYP. HORIZONTAL TRAFFIC SIGNAL ARRANGEMENT



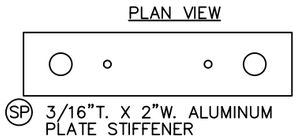
FRONT VIEW OF BALANCE ADJUSTER & SIGNAL ENTRANCE HEAD

5 SECTION (CLUSTER) POLYCARB TRAFFIC SIGNAL DESIGN

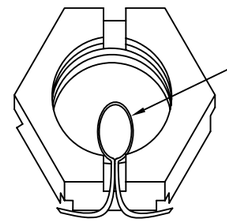


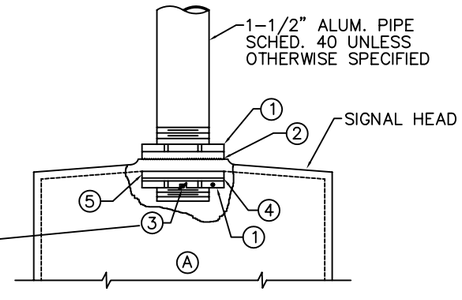


(D) TYP. DOUBLE SECTION 8" YELLOW SIGNAL HEAD DETAIL



BOTTOM VIEW COTTER PIN DETAIL



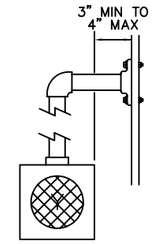


NOTES (FOR (A) & (B))

1. 1-1/2" ALUMINUM OR GALV. MALLEABLE LOCK NUT, (THICK TYPE 3/8" TO 1/2" THICK).
2. SERRATED BUSHING.
3. DRILL HOLE IN NIPPLE WERE SLOT FOR THE NIPPLES OF THE SERRATED WASHER WOULD FIT IN, INSERT COTTER PIN IN HOLE. AS SHOWN ABOVE.
4. 1-1/2" STAINLESS STEEL WASHER.
5. 1-1/2" RUBBER WASHER.
6. ALL THREADS ON STEEL PIPE ARE TO BE PAINTED WITH A ZINC RICH PRIMER PRIOR TO ASSEMBLY.

(A) TYPICAL METHOD OF CONNECTING TRAFFIC SIGNAL HEAD WITH NIPPLE OR MANUF'D ENTRANCE FITTING

GENERAL NOTES



SIGNALS AND OR WARNING SIGN & SIGNALS SHALL BE INSTALLED WITH 17 FEET OF CLEARANCE TO PAVEMENT GRADE.

STEEL PIPE & FITTINGS SHALL BE GALV. SCHED. 40.
ALUM. PIPE & FITTINGS SHALL BE SCHED. 40

ALL HARDWARE FOR SECURING HUBS TO SIGN CABINETS SHALL BE STAINLESS STEEL NUTS, BOLTS & WASHERS SIZED TO HUB OPENINGS.

HUBS SHALL BE SIZED TO 1-1/2 INCH PIPE. PROVIDE ENTRANCE HOLE (1 INCH) FOR WIRE ENTRY INTO SIGN CABINET. SECURE WEATHERPROOF SEAL OF HUBS TO SIGNS WITH GASKETS.

STATE OF OHIO
STEVEN GERALD BAILEY
49331
REGISTERED
PROFESSIONAL ENGINEER

S.C.H.	Steve Bailey	8/20/04	UPDATE
T.E.		3/1/98	

DESIGN	REVISION APPROVED	DATE	WO #	SCALE	SOURCE	DRAWN	FILE NO.
R.R.R.		6/26/92			NEW STANDARD	CDS ASSOCIATES	ES-3-5

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

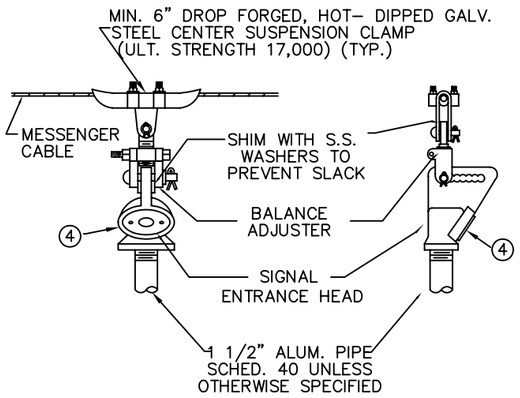
SPECIAL TRAFFIC SIGNAL & SIGN ARRANGEMENT DETAILS

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED: Steve Bailey DATE: 3-4-99

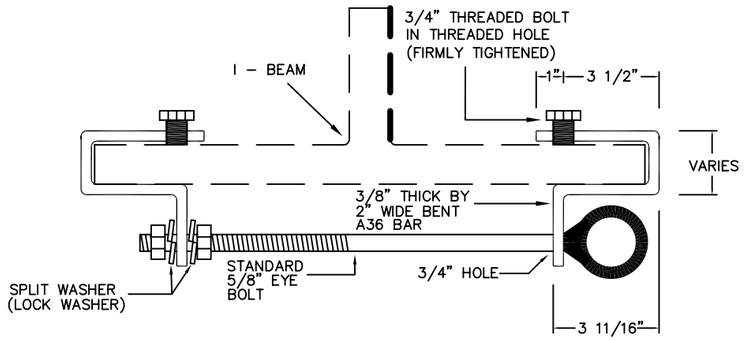
FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
5	OHIO		

NOTE: ADJUST SIGNAL HEAD(S) TO FACE APPROACHING TRAFFIC BY ADJUSTING VERTICAL AXIS TO BE PEPENDICULAR TO THE ANGLE OF APPROACH

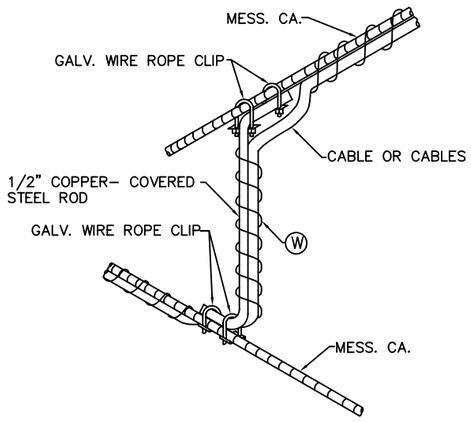


* BALANCE ADJUSTER REQUIRED FOR ALL SIGNAL HEADS. NOT NORMALLY REQUIRED FOR SIGNS.

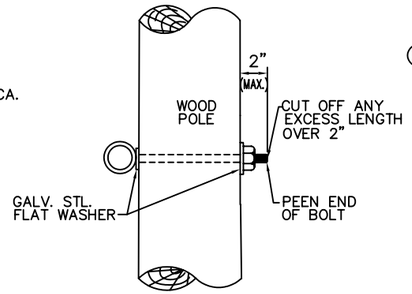
TYPICAL SPAN WIRE HANGER ASSEMBLY



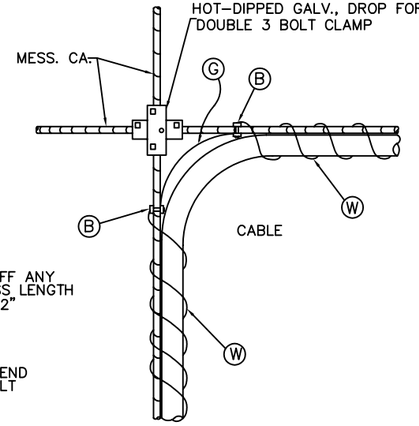
I– BEAM CLAMP



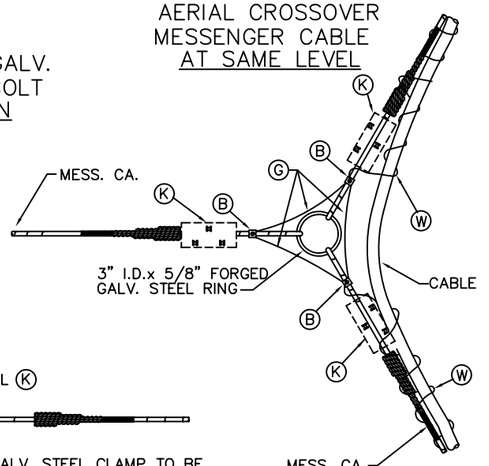
MESSENGER CABLES AT DIFFERENT LEVELS



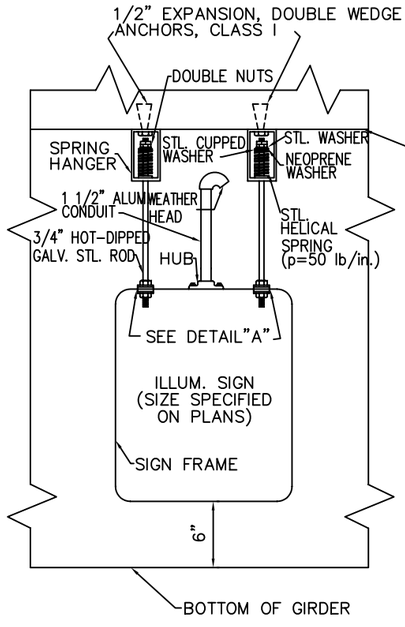
TYPICAL 5/8" GALV. THIMBLE EYE BOLT INSTALLATION

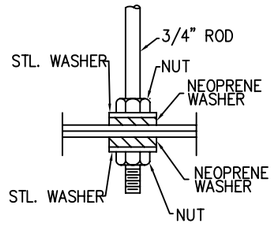


AERIAL CROSSOVER MESSENGER CABLE AT SAME LEVEL



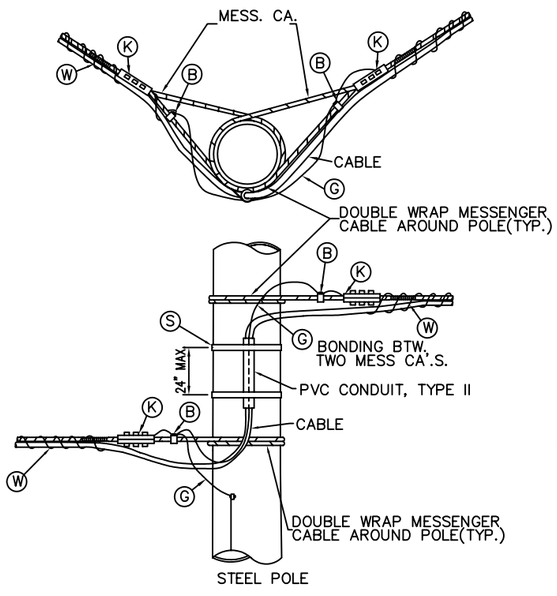
AERIAL CORNER (BULL RING)

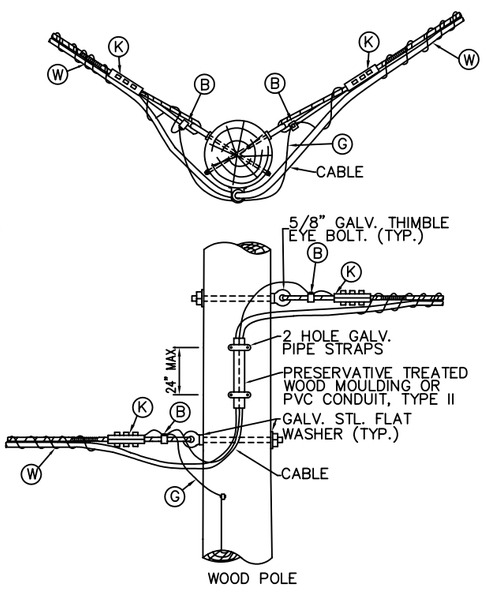




DETAIL"A"

SPRING HANGER FOR BRIDGE MOUNTING





MESSENGER WIRE & CABLE RISE AT DIFFERENT LEVELS

GENERAL NOTES

- (B) SPLIT BOLT CONNECTOR; DOSSERT, BLACKBURN, McGRAW–EDISON, OR APPVD. EQUAL
- (G) #6 AWG. SOLID BARE COPPER GROUND WIRE
- (K) 3 BOLT CLAMP (SEE DETAIL).
- (S) 1/16"x 7/8" STAINLESS STEEL POLE BANDING
- (W) #14 BARE COPPER LASHING WIRE OR #12 PREFORMED COPPER LASHING RODS
- (4) BALANCE ADJUSTER & SIGNAL ENTRANCE HEAD MUST BE INSTALLED WITH WIRE ENTRANCE FACING APPROACHING TRAFFIC.

STATE OF OHIO
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S.C.H.	Steve Bailey	8/18/04	UPDATE
T.E.		3/1/98	

DESIGN	REVISION APPROVED	DATE	WO #
		12/07/94	

TRAFFIC SIGNAL INSTALLATIONS (ES–3)

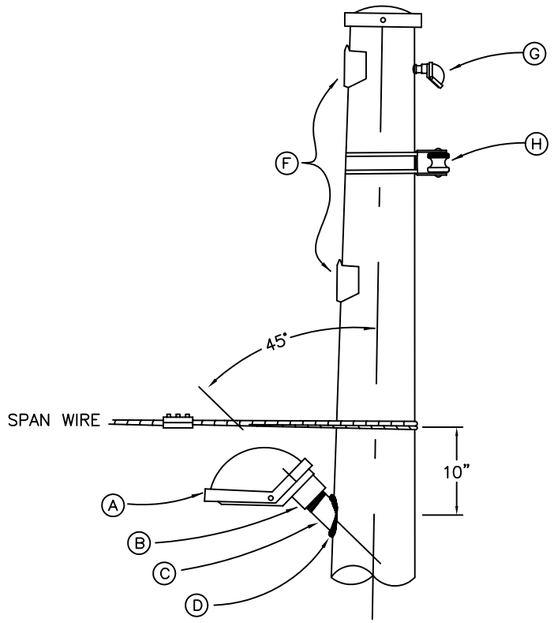
AERIAL & BEAM ATTACHMENTS & HARDWARE

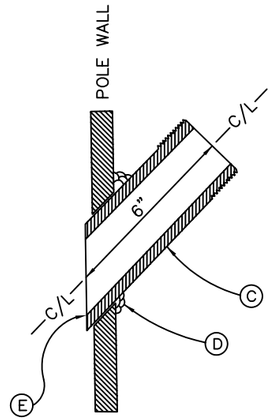
CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

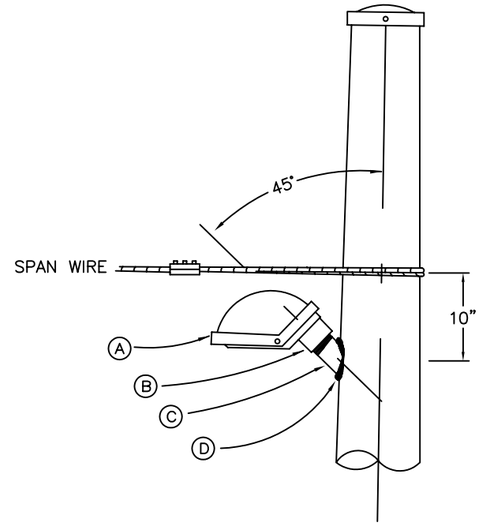
APPROVED Steve Bailey DATE 3–4–99

SCALE	SOURCE	DRAWN	FILE NO.
–		VGRD	ES–3–4

CABLE ENTRANCE DETAIL, SIGNAL & LIGHTING POLES







NOTE:

Ⓐ WEATHERHEAD,PVC SCHD. 40 CARLON MFD. OR APPROVED EQUAL, SEE MATERIAL SCHEDULE CHART FOR EACH INTERSECTION TO DETERMINE SERVICE ENTRANCE SIZE. PROVIDE MIN. DRIP LOOP OF 1FT.

Ⓑ FEMALE ADAPTER, PVC SCHD. 40 CARLON MFD. OR APPROVED EQUAL, SEE MATERIAL SCHEDULE CHART FOR SIZE.

Ⓒ USE A 12" SCHD. 40 RMC GALV. NIPPLE, MAKE A 45°CUT TO OBTAIN 2 EQUAL LENGTHS. SEE MATERIAL SCHEDULE CHART FOR SIZE. NIPPLE TO PIERCE POLE WALL.

Ⓓ MUST BE A CONTINUOUS WELD. CLEAN WELDED AREA AND COAT WITH A COLD GALVANIZING PAINT, "ZINC-IT" BY CRC CHEMICAL COMPANY, OR APPROVED EQUAL.

Ⓔ DEBUR AND CHAMFER FOR SMOOTH CABLE ACCESS.

Ⓕ FACTORY INSTALLED POLE PLATES FOR MOUNTING STREET LIGHT BRACKET ARM, CONTRACTOR TO INSTALL BRACKET ARM WITH 2 #10 WIRES, FOR LUMINAIRE POWER.

Ⓖ FACTORY INSTALLED 2" HALF COUPLING WITH CONTRACTOR INSTALLED 1" WEATHERHEAD, PVC SCHD. 40 CARLON MFD. OR APPROVED EQUAL, USED FOR LUMINARE POWER CABLE. IF HALF COUPLING MISSING INSTALL WEATHERHEAD ON TOP OF POLE CAP.

Ⓗ CONTRACTOR INSTALLED CLEVIS & INSULATOR, (SINGLE BALL RACK). ATTACH WITH 3/4" X 0.030" STAINLESS STEEL BANDING.

STATE OF OHIO
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S.C.H.	Steve Bailey	8/13/04	UPDATE
T.E.		3/1/98	

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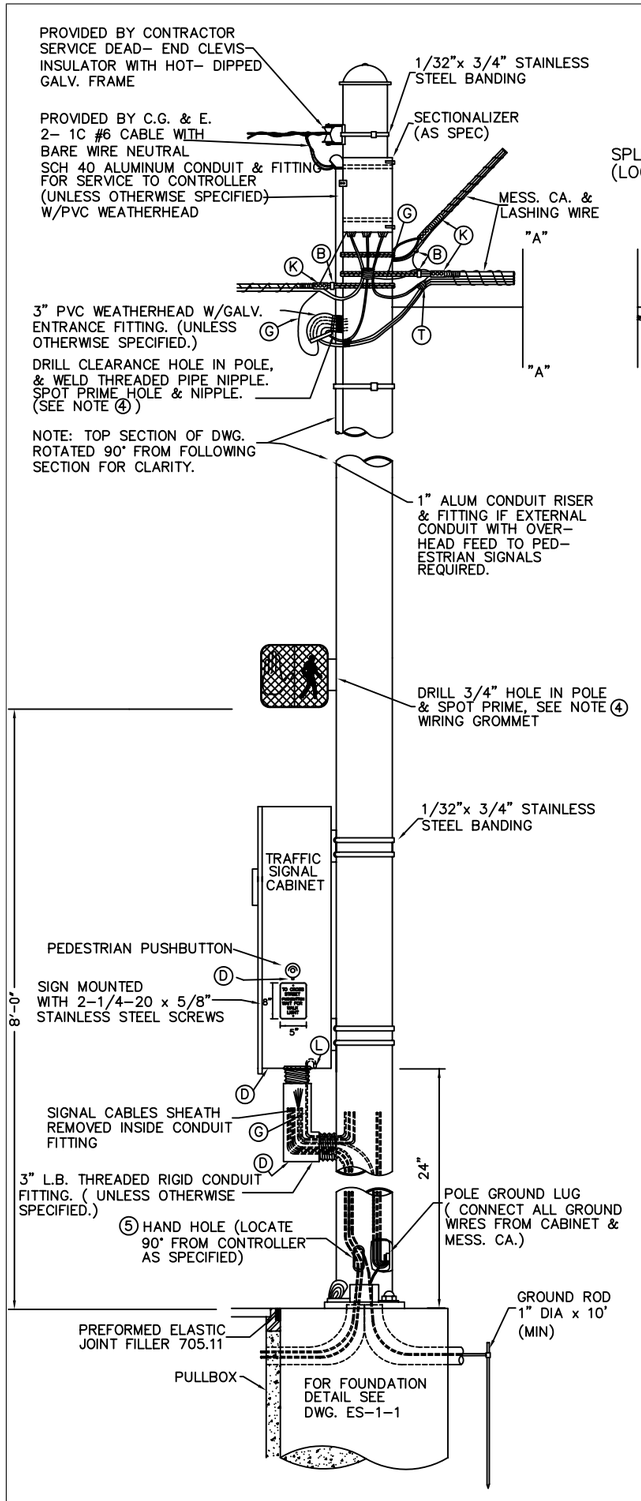
		9/14/94					ES-3-3

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

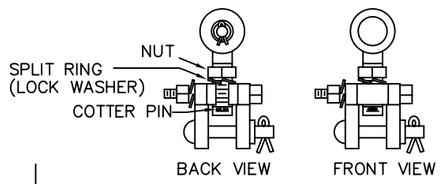
NIPPLE INSTALLATION DETAILS

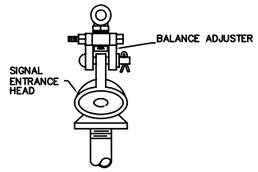
CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steve Bailey DATE 4-27-05

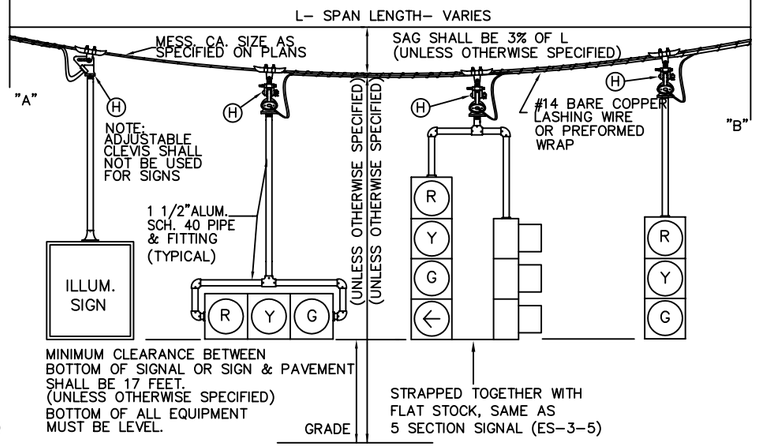


GALV. BALANCE ADJUSTER





FRONT VIEW OF BALANCE ADJUSTER & SIGNAL ENTRANCE HEAD



Ⓐc INSTALL AERIAL CORNER FOR LATERAL CLEARANCE OF CATV OR TELEPHONE CABLE TO TRAFFIC SIGNAL EQUIPT. (SEE PLAN SHEET)

TYPICAL SPAN WIRE INSTALLATIONS OF SIGNS & SIGNALS

NOTES:

MESSENGER CABLE SHALL NOT BE ATTACHED ABOVE 18" FROM THE TOP OF THE POLE.

ALL ALUM. PIPEFOR BRACKET ARMS, DROP PIPE, & OTHER APPLICATIONS SHALL BE STD. WT., SCHED. 40.

ALL GALV. PIPE & CONDUIT FITTINGS SHALL BE STEEL OR MALLEABLE IRON (150 LB TEST)

ALL STEEL CONDUIT SHALL BE IN COMPLIANCE WITH SPEC. 725.04

ALL PVC CONDUIT & FITTINGS SHALL BE TYPE II (SCHED. 40)

ALL MESSENGER CABLE SHALL BE COPPER COVERED STEEL, 7 STRAND, ASTM B–228, GRADE 30 EHS. REFER TO PLAN FOR SIZE.

Ⓑ SPLIT BOLT CONNECTOR, DOSSERT, BLACKBURN, McGRAW–EDISON, OR APPROVED EQUAL. CONNECT MESS. CA., LASHING WIRE, & GROUND WIRE.

Ⓒ GALV. STEEL OR MALLEABLE IRON DOUBLE HOLE PIPE STRAPS EVERY 2' MAX.

Ⓓ DRILL 3/8" DRAIN HOLE IN LOWEST PART OF CABINETS & FITTINGS

Ⓖ #6 AWG. BARE COPPER GROUND WIRE. ROUTE INTERNALLY IN STEEL POLE TO POLE GRD. LUG. FOR WOOD POLES, ROUTE EXTERNALLY TO POLE GROUND WIRE.

Ⓗ SEE STANDARDS DWG ES–3–4 FOR TYPICAL SPAN WIRE ASSEMBLY DETAIL.

Ⓚ SERVE WITH 5" TO 7" MAUSE OR SELF WRAP THROUGH THIMBLE EYE BOLT. 3 BOLT CABLE CLAMP TO BE REMOVED AFTER CABLE ENDS HAVE BEEN MAUSED.

Ⓛ GROUNDING LUGS FOR CABINETS SHALL BE: BLACKBURN L–125, T & B1300 SERIES OR APPVD. EQUAL. FOR ALUMINUM SIGNALS ONLY.

Ⓣ 4 TURNS OF PLASTIC TAPE OR NYLON CABLE TIES (OUTDOOR USEAGE TYPE).

MAINTAIN DRIP LOOPS ON ALL WEATHERHEAD ENTRIES.

POLE BRACKETS SHALL BE ALUMINUM W/PLATE CURVED TO CONTOUR OF POLE AND FOR 1 1/2" PIPE BRACKET ARMS.

① UPPER BRACKET W/1 1/4" HUB FOR EXTERNAL CONDUIT ENTRY; EAGLE SIGNAL CO. #U1159, GENERAL TRAFFIC EQUIP. CORP. #H1001 24A OR APPROVED EQUAL.

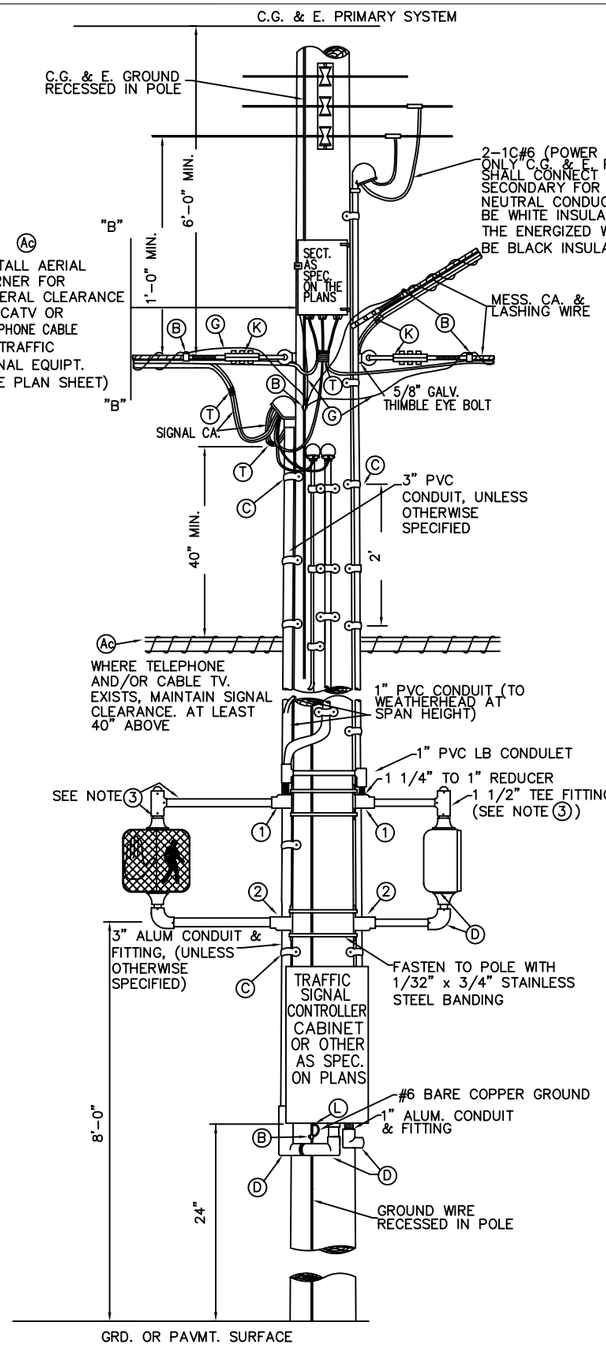
② LOWER BRACKET W/O HUB; EAGLE SIGNAL CO. #U1158, GENERAL TRAFFIC EQUIPT. CORP. #H100123A, OR APPROVED EQUAL.

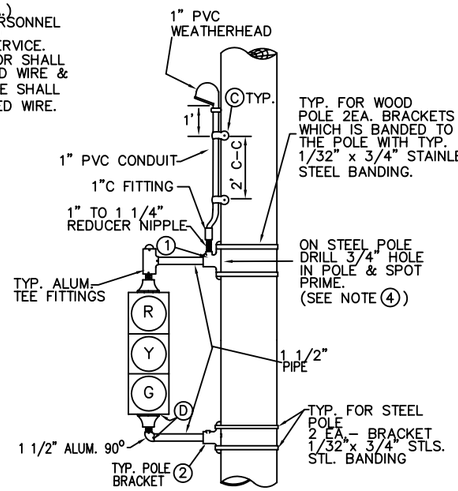
③ PEDESTRIAN SIGNAL BRACKET SUPPORTS: 1 1/2 INCH ALUMINUM WITH ALUM. FITTINGS FOR PED. SIGNAL, OR CLAMSHELL MOUNTING ON STEEL POLES.

④ SPOT PRIME EXPOSED SURFACES WITH "ZINC 1T" OR APPROVED COLD GALVANIZING COATING. (SEE SPEC. ITEM 1317)

⑤ HANDHOLE ON CONTROLLER POLE (90° OR 270°) LOCATED AS SPECIFIED.

NOTE: SPECIFICATION NUMBERS REFER TO STATE OF OHIO, DEPT. OF TRANSP., "CONST. & MATERIALS SPECS", OR ASTM SPECS.





BRACKET ARM ATTACHMENT

Ⓒ CONDUIT CLAMPS USE DOUBLE HOLE TYPE.

SECURE WITH 2–1/2" LG. GALV. NAILS

TOP VIEW DOUBLE HOLE STRAP & RISER

FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
5	OHIO		

STATE OF OHIO
STEVEN GERALD BAILEY
49331
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S.C.H.	Steve Bailey	8/13/04	UPDATE
T.E.		3/1/98	
DESIGN	REVISION	DATE	WO #
	APPROVED	9/14/94	

TRAFFIC SIGNAL INSTALLATIONS (ES–3)

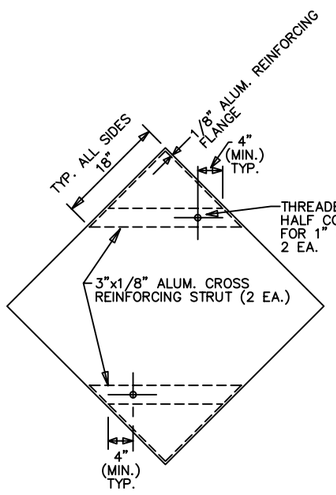
TRAFFIC SIGNAL SPAN WIRE INSTALLATION

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steve Bailey DATE 3–4–99

SCALE	SOURCE	DRAWN	FILE NO.
			ES–3–2

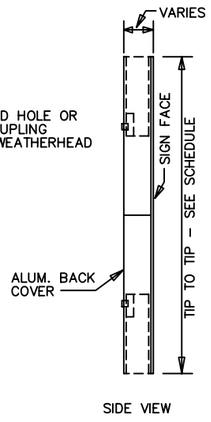
FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
5	OHIO		



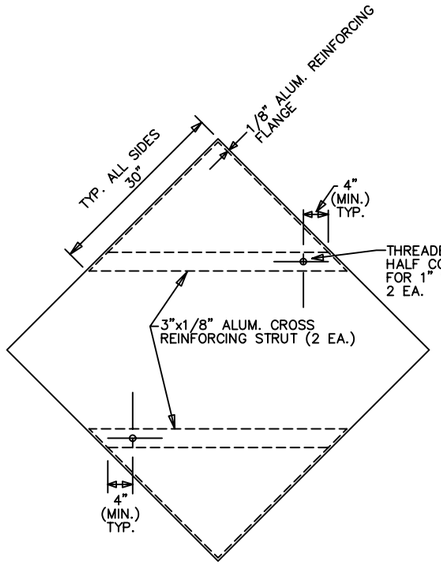
BACK VIEW

36x36D

50.9 INCH DIAG. DIM.



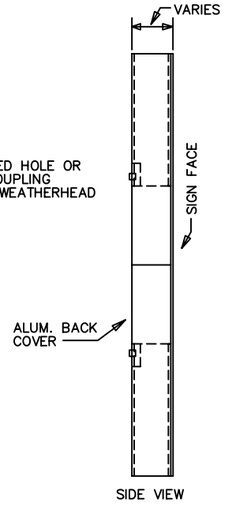
SIDE VIEW



BACK VIEW

48x48D

67.9 INCH DIAG. DIM



SIDE VIEW

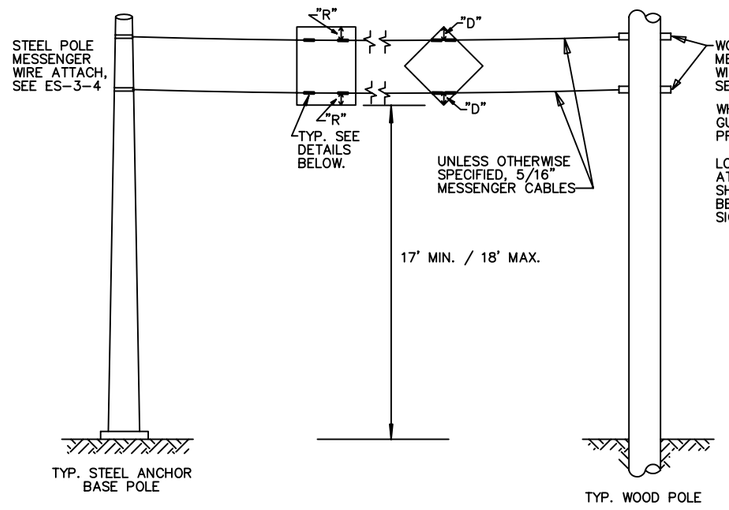
NOTE:
ALL ALUMINUM REINFORCING FLANGES & STRUTS SHALL BE WELDED TO CASE. CROSS STRUTS SHALL BE WELDED AGAINST SIGN BACK COVER WITH HALF-COUPLING (FOR WIRING) PROJECTING THRU BACK OF SIGN.

SIGN DIMENSIONS

DIAGONAL TIP TO TIP FOR DIAMOND SHAPED SIGN.

36"x36"D	50.9 INCHES
48"x48"D	67.9 INCHES

INTERNAL REINFORCING FOR DIAMOND SHAPED INTERNALLY ILLUMINATED SIGNS



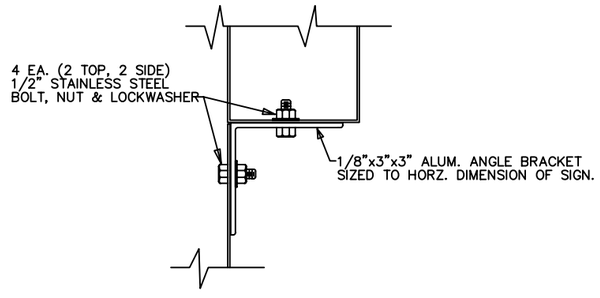
TYPICAL DOUBLE MESSENGER WIRE SIGN SUPPORT DETAIL

NOTES

FOR MESSENGER WIRE AND 3 BOLT CLAMP DETAILS, SEE STANDARD DRAWING ES-3-4.

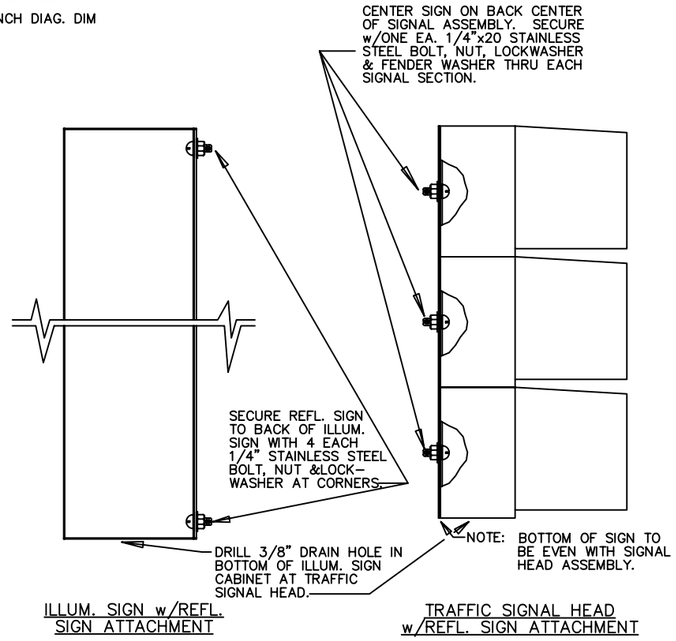
DOUBLE MESSENGER WIRE SIGN SUPPORT DETAIL

1. INSTALL TOP MESSENGER SPAN FIRST WITH MIN. SAG.
2. HANG SIGNS AND TIGHTEN BOTTOM SPAN ON DOWNWARD ANGLE SO THAT BOTH UPPER AND LOWER SPANS ARE PULLED TAUGHT.
3. POLES WILL BOW SLIGHTLY AND SHOULD NOT BE OUT OF PLUMB BUT KEEP SPANS TIGHT.
4. WOOD POLES MAY REQUIRE GUYING



TYPICAL DETAIL OF REFL. (EDUCATIONAL PLAQUE) SIGN ATTACHMENT TO ILLUM. (SYMBOL) SIGN.

SECURE LOWER AUXILIARY SIGN TO UPPER ILLUM. SIGN WITH ALUMINUM ANGLE BRACKET & HARDWARE. PAYMENT SHALL BE INCIDENTAL TO ILLUM. SIGN.

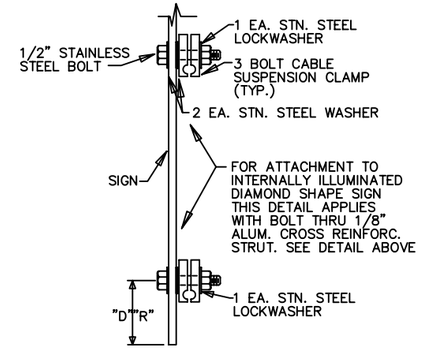


ILLUM. SIGN w/REFL. SIGN ATTACHMENT

TRAFFIC SIGNAL HEAD w/REFL. SIGN ATTACHMENT

TYPICAL DETAIL OF REFLECTORIZED SIGN ATTACHMENT TO ILLUMINATED SIGNS OR TRAFFIC SIGNAL HEADS

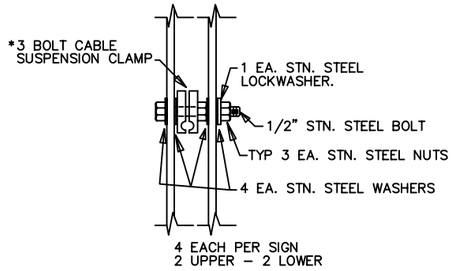
NOTE: PAYMENT FOR THE ATTACHMENT SHALL BE INCIDENTAL TO THE ILLUMINATED SIGN OR SIGNAL HEAD



TYPICAL UPPER AND LOWER ATTACHMENTS

"D" DIAMOND (OR OCTAGONAL) SHAPED SIGN
36"x36"D SIGN - 12 3/4"
48"x48"D SIGN - 21 1/4"

"R" RECTANGULAR SHAPED SIGN
30"x36" SIGN - 6"
36"x42" SIGN - 6"
30"x48" SIGN - 8"
36"x60" SIGN - 12"



ATTACHMENT DETAIL DOUBLE FACE SIGN

* 3 BOLT CLAMP WITH OUTER BOLTS REMOVED OR SINGLE BOLT CLAMP.

NOTES
1. PREDRILL BOLT HOLES IN BOTH SIGNS
2. ASSEMBLE ATTACHMENT HARDWARE FOR FIRST SIGN AND SECURE TO UPPER AND LOWER MESSENGER WIRES
3. BOLT ON 2nd SIGN AND SECURE WITH WASHER, LOCK WASHER AND NUT.

STATE OF OHIO
STEVEN GERALD BAILEY
49331
REGISTERED PROFESSIONAL ENGINEER

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

SPECIAL SIGN INSTALLATION DETAILS

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED: Steve Bailey DATE: 3-4-99

S.C.H.	Steve Bailey	8/30/04	UPDATE
T.E.		3/1/98	

DESIGN	REVISION	DATE	WO #	SCALE	SOURCE	DRAWN	FILE NO.
R.R.R.	APPROVED	8/2/90					ES-3-11